DEC. 2 1960

PETROLEUM WEEK

A McGRAW-HILL PUBLICATION

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Price 50 Cents

UNIV MICROFILMS INC
EDITORIAL DEPT
313 N FIRST ST
ANN ARBOR MICH A

ANOTHER MAJOR BREAKTHROUGH FROM DOWELL

FLAC

A new kind of Fluid Loss Additive for Cement that far surpasses anything previously offered

WHAT IT IS. FLAC* is an important new fluid loss control additive for Class A and E neat and Class A bentonite oil well cement systems. Technically, it is a high-molecular-weight, synthetic polymer. It is supplied in the form of a dry powder that is easily mixed into either cement or water.

ADVANTAGES include reliable squeezing or primary cementing—especially in porous, high temperature zones. FLAC is especially useful for permanent type and tubingless completions. Since excess cement can be reversed out before testing, this saves a round trip as well as expensive drilling-out. WOC time is held to a minimum.

WHAT IT DOES. When used in correct concentrations, FLAC drastically reduces fluid loss of the cement slurry over a wide temperature range and at high differential pressures. It is stable at both high and low temperatures and does not affect slurry and set cement adversely. Premature dehydration is prevented and the result is reliable thickening time in squeeze cementing and maximum fill-up in casing cementing.

To give some idea of just how efficiently FLAC reduces fluid loss, here are some representative figures taken from laboratory tests made under simulated well conditions.

These tests were conducted according to API procedures set forth in RP-10B, January, 1960. Slurry was first subjected to appropriate API test schedule in the pressure thickening-time tester. The time interval was equal to that required for slurry placement in a well. Then fluid loss tests were made on the slurry samples in a high-temperature, high-pressure tester. API cement filter screens were used at maximum cementing temperature and at 1,000 psi differential pressure.

Class of Cement	Percent Bentonite	Percent FLAC	Temperature (Degrees F)	API Thickening Time—Hours and Minutes	Fluid Loss at 1000 PSI cc/30 Minutes
A	0	0	113	2:30	800
A	0	1½	113	2:28	35
A	12	0	125	2:30	336
A	12	1½	125	2:40	34
E	0	0	213	1:40	1000
E	0	1	213	2:15	100
E	0	1½	213	2:50	50

FOR MORE INFORMATION on FLAC, contact the nearest Dowell representative. Dowell services and products are offered from more than 150 offices and stations in the United States, Canada, Venezuela, Argentina, France, Germany and the Sahara area. Dowell, Tulsa 1, Oklahoma.

* Dowell Trademark

Services for the oil industry

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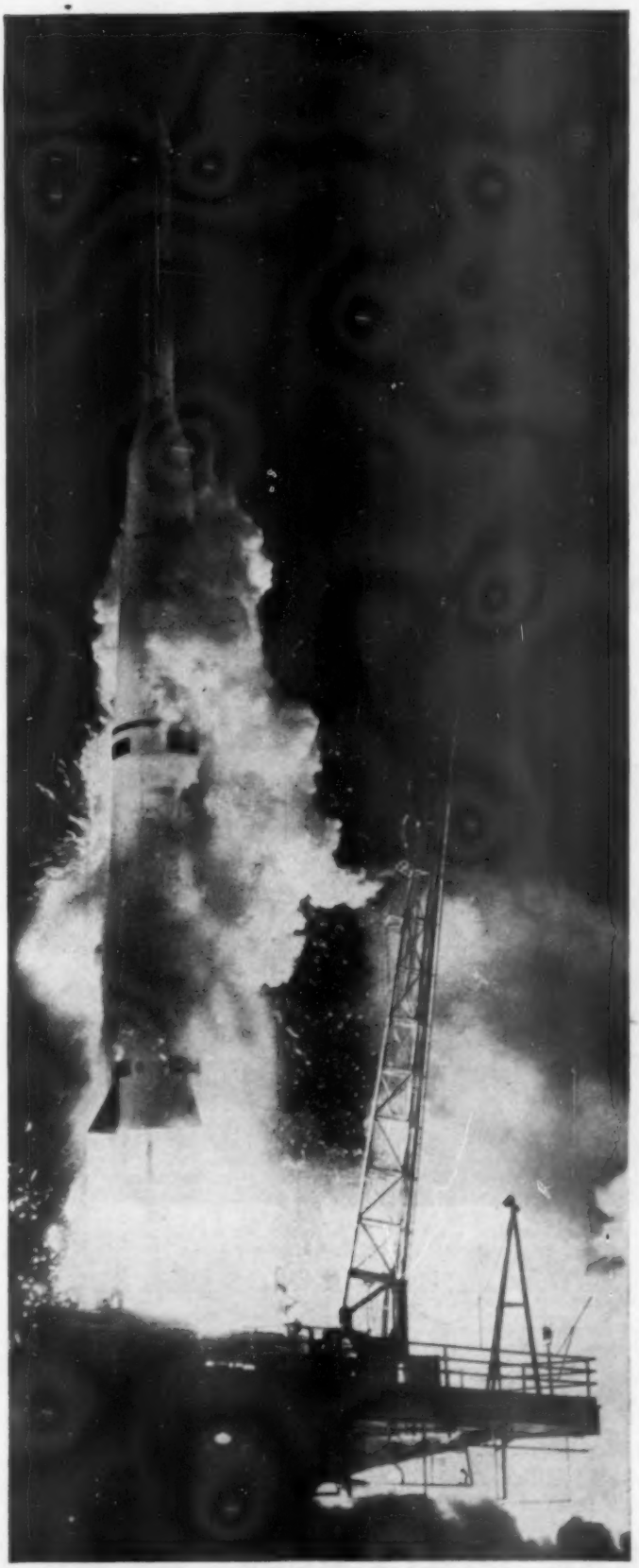
DIVISION OF THE DOW CHEMICAL COMPANY



We're Breaking Murphy's Law

When men first tried putting satellites into orbit, they thought they had learned a rule of rocketry: if a component *can* fail, it *will* fail. They called it "Murphy's Law", and, as headlines tell us, the law is frequently enforced.

Fortunately, through experience, dedicated rocket men found that Murphy's Law could be broken. They mastered the complicated launching vehicles and in the doing gained for America the lead in scientific space exploration. Components which theory said *could* fail, *did not fail.*

Sinclair Research Laboratories, Inc. is proud to have developed one of these law-defying components—a special lubricant for critical rocket motor parts. This special lubricant was used when our first satellite was launched and *has had a part in all major U. S. satellite projects to date* (through Discoverer XVII).

Rocket motors offer a limited oil market, it's true. But the research which wins acceptance in that specialized market also insures the quality of and demand for the principal Sinclair products — gasolines, fuels, lubricants and petrochemicals. *Quality research is profitable research.*

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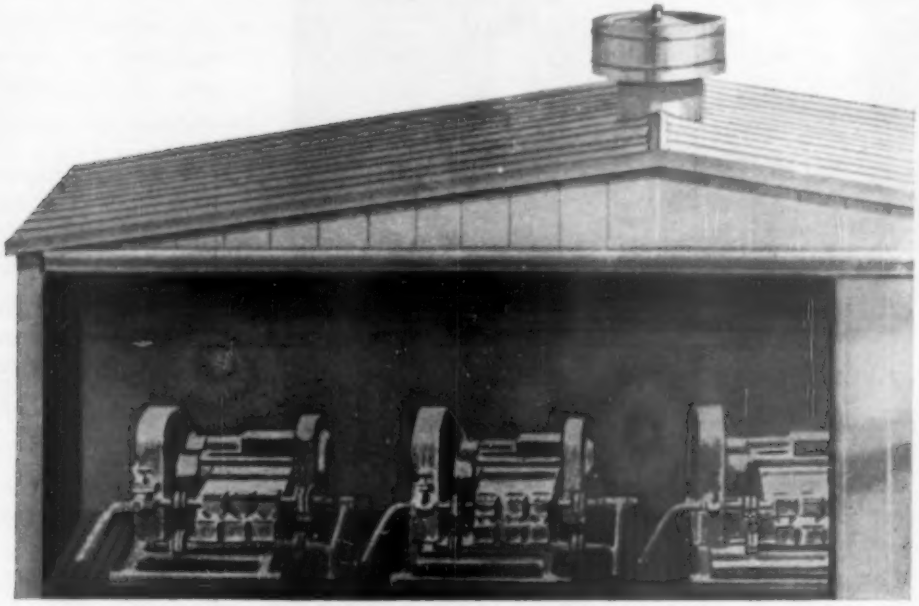
The hardest workers in waterflooding are the injection pumps. Bethlehem's sturdy high-pressure Triplex Plunger pumps will stand up under full-load operation week after week and not miss a stroke. Wherever the pumping is tough—in waterflood systems, pipelines, refineries, salt-water disposal work—you'll find lots of Bethlehem TP's going strong.

Simple construction with controlled flood lubrication makes Bethlehem TP's easy to maintain. And they're readily adaptable to the specific job—plungers and fluid ends are available in a choice of materials. Speed reducers are optional.

Check with the Bethlehem store in your area. If you'd like more information about our rugged TP's first, write for our Booklet 1644, *Bethlehem Power Pumps.*



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Capacities: 100 to 9,565 BPD
Plunger Loads: 3,580 to 10,000 lb
Pressures: 438 to 3,180 psi

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INSIDE *Slant*

CHANGE EMPHASIS

The number of holes drilled annually long has been considered one of the barometers of the petroleum business.

But in this day of multiple completions, it is felt that perhaps a better barometer might be horizons, the number of pay zones from which a well is completed.

Dry holes, of course, still would count as single completions.

The shift to the horizon basis would add considerably to the number of producing wells in the nation.

A check into the records of the Texas Railroad Commission reveals that there were 1,573 dual completions registered in Texas during 1959. On a horizon basis, this would mean 3,146.

The triple completions for 1959 in Texas totaled 117, or the equivalent of 351 horizons. There were six quadruple completions, or 24 horizons.

Considered as a single completion, these multiples total 1,696. But, on the basis of horizons, the total is lifted to 3,521.

Multiples in Texas, alone, added an additional 1,825 horizons in 1959.

And it has been estimated, there have been 15,000 duals completed in Texas since they first won approval.

LeRoy Menzing
Editor

Congrats and $25 for this quip to J. P. Deany, Phillips Petroleum Company, Box 1351, Odessa, Texas

Oil and gas men are quick to say that Lone Star products are "tough, top quality and delivered fast". Quick supply, and superior steel are among the reasons more and more have switched to Lone Star API casing, tubing and line pipe.

Exacting quality control combined with years-ahead manufacturing techniques today . . . are your guarantee of API standards in Lone Star pipe. And remember, delivery in the field is a matter of hours.

Neighbor, wherever you are, specify Lone Star and we both get a good deal.

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Views That

Dear Sir:

You speak my sentiments in your Inside Slant "A Reward Is Due" [PW—Nov.18'60,p3]. Forty percent of the capacity to produce in Texas is shut in at the expense of the producer.

Operating at 60%, present crude oil postings are not sufficient to generate the cash necessary for exploration, to cover increased operating costs, and to provide a reasonable profit. If crude production is to be held at the present level for a period of time, then postings must be sufficient to provide the necessary income.

Products prices should protect the refiner as to the necessary margin for a healthy condition.

MASTON NIXON
Chairman
Southern Minerals Corp.

Dear Sir:

Your Inside Slant, "A Reward Is Due," is very good, and I believe it will bear fruit. We producers appreciate your timely remarks.

R. L. FOREE
Independent producer
Dallas

"If we want a path beaten to our door, we need a better mouse trap—not a bigger one."

—M. J. RATHBONE
President
Standard Oil Co. (N.J.)

"When we begin to think of what will logically follow the introduction of petroleum-driven machinery into areas such as India now is, with its hundreds of millions of people; when we begin to think of the vast areas in Africa and elsewhere that have never felt the touch of any sort of plow when we contemplate the incomparable quantities of energy that will be required to raise the living standards of literally billions of people, then I think we can begin to see that the growth of the petroleum industry has, in fact, hardly yet begun."

—E. D. BROCKETT, JR.
President
Gulf Oil Corp.

"A solid front in approaching petroleum marketing would be invaluable in attempting to roll back much of the unfair government taxation and regulation under which we now suffer grievously."

—C. J. GUZZO
Senior vice-president
Gulf Oil Corp.

Make News

"Well over half of the total Free World consumption of petroleum occurs here in the United States and in Canada. These two countries do not now import any Soviet crude oil or products and are most unlikely to do so in the foreseeable future. When this fact is taken into consideration, it appears that Soviet exports currently comprise about 5% of Free World demand outside of the United States and Canada."

—ARTHUR H. DEAN
Sullivan & Cromwell, N.Y.

"The petroleum industry has been alert to the possibilities of research in fields ranging from earth studies, such as geophysics and oceanography, all the way to today's burgeoning field of petrochemicals. No small part of these accomplishments has come from a number of outstanding research laboratories established by oil companies to insure that their scientists and engineers have the necessary facilities and the intellectual climate necessary for their work.

"The oil industry can stand as an example to most other industries in balanced sponsorship of research. In too many industries, the division of the total expenditure in favor of development over research has been dangerously lopsided."

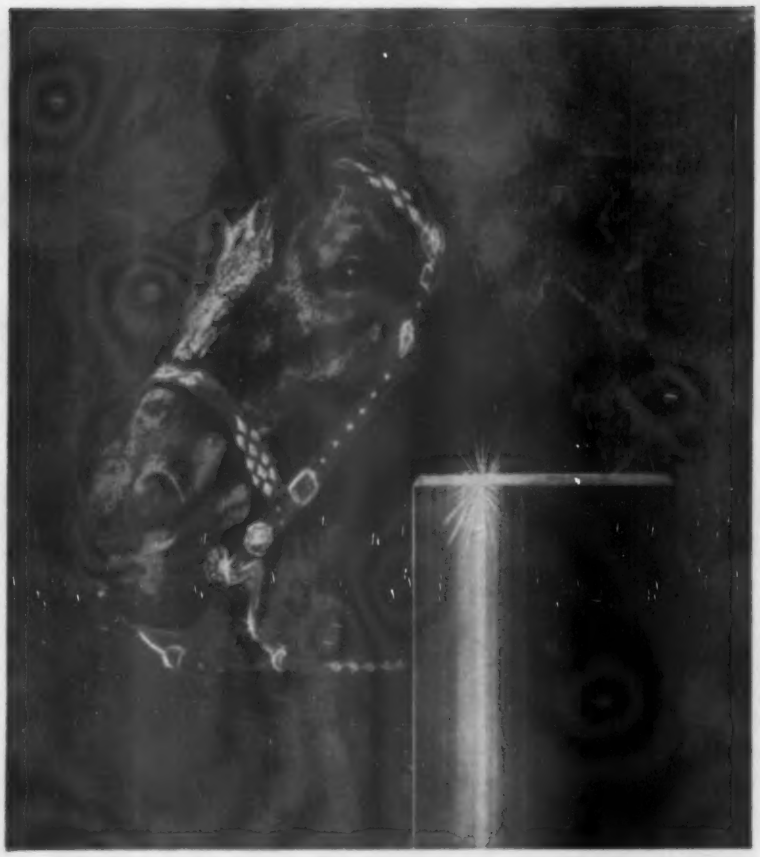
—ALAN T. WATERMAN
Director
National Science Foundation

"The wholesale price index for crude and products . . . finished in 1959 below the average for all manufacturing, and well below each of the other industry groups except textiles and meat packing.

"It is true that oil prices have fluctuated less than some of the others plotted. But they contrast sadly with iron and steel, tin cans, cement, and tires and tubes. Over the past 11 years, prices in those four groups have climbed strongly, so that they are now 45%-70% higher than in 1948. In spite of its strong starting position and steady growth of demand, the petroleum industry puts up a surprisingly poor showing in comparison with these four. If they can do so well, why can't we?"

—WILLIAM I. SPENCER
Senior vice-president
First National City Bank of New York

"Continuation of distressed conditions in the [drilling] contracting in-



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OF THE
OIL AND GAS
INDUSTRY

Lone Star pipe, a real thoroughbred, is the odds-on favorite in the oil and gas industry. Precisely made by proud craftsmen . . . Lone Star casing, tubing and line pipe meet exacting API standards.

Strictly a quality product . . . Lone Star pipe is formed from fine steel, then fully normalized . . . with multiple inspections assuring long, dependable service. Put your money on Lone Star. You can't lose . . . and you gain much!

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There are many Styles of Diamond Bits . . .

. . . because Christensen "custom engineers" diamond bits to overcome particular problems. On that next drilling, coring, reaming, or fishing job, ask your nearest Christensen office about diamond bits designed for you.

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SERVICE FROM WORLD-WIDE SALES OFFICES AND MANUFACTURING PLANTS

dustry must inevitably and ultimately result in undesirable repercussions for producers as well as contractors. Since producers furnish all funds generated by contractors, operators will have to assume the serious burden of putting the contracting business back on its feet whenever the quality and/or quantity of available rigs and manpower declines to the point where they no longer are capable of efficiently satisfying requirements of the producing branch."

—WARREN L. BAKER
Executive vice-president
American Assn. of Oilwell Drilling Contractors

"The price of crude oil and its products is a very important factor in coming up with the answers to whether any petroleum enterprise—a simple drilling deal or a big company operation—justifies the investment required. Most people must be operating on faith for nobody seems to be making long-term predictions of strong product or crude oil prices."

—ESTILL S. HEYSER, JR.
President
Texas Mid-Continent Oil & Gas Assn.

"We estimate that half of all cars sold in the United States next year will be compacts. It is not unreasonable to suppose that compacts will account for 60% or more of the new car market by 1963."

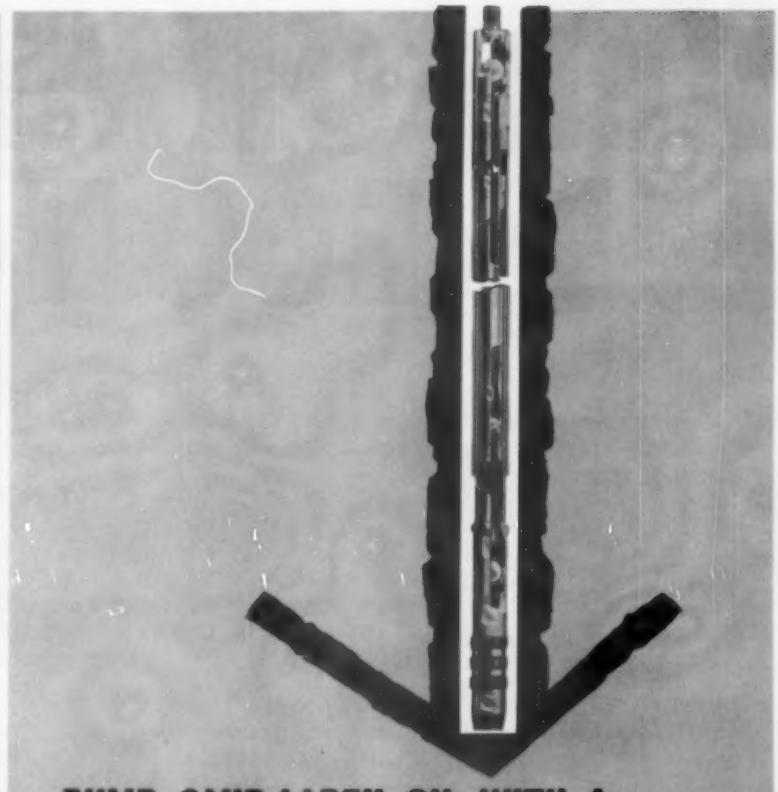
—HAROLD E. CHURCHILL
President
Studebaker-Packard Corp.

"Let us never forget that the real difference between Communist Russia and the United States is not in the field of pure science—not in the race for space—but rather in a philosophy of government. The only really lasting difference between these two countries is the issue of freedom—and if we lose our liberty it won't make much difference whether we win the race for space. If we win that scientific race, and destroy our philosophy of government, they will have won. We will have dug our own grave."

—WILLARD M. WILSON
Secretary
American Petroleum Institute

PETROLEUM WEEK *will publish each week comments from readers on timely, pertinent subjects. Such expressions are welcome.*

Address all such correspondence to LeRoy Menzing Editor, PETROLEUM WEEK, *330 W. 42nd St., New York 36, N.Y.*



PUMP SAND-LADEN OIL WITH A HARBISON-FISCHER 3-TUBE ROD PUMP

If you are pumping a recently-fractured well, or from a formation with unusually high sand-laden fluid, a Harbison-Fischer 3-Tube Rod Pump, because it can handle sand and other entrained solids that cause trouble in other pumps, may solve your pumping problems once and for all.

The pump consists of two concentric, loose-fitting tubes (plunger and jacket tube) which telescope over and in a third, stationary tube that serves as the pump barrel. Well fluid in the annular spaces between the three tubes packs off and compensates for the loose fit.

This "fluid seal," the loose-fitting plunger, and a small plunger bore combine to produce sandy fluid efficiently . . . a high-velocity discharge at the bottom of the pump flushes sand into the fluid column after shut-down periods and keeps it in suspension; there's no plunger sticking or galling due to sand in the fluid, and no plunger wear or strain on the rod string.

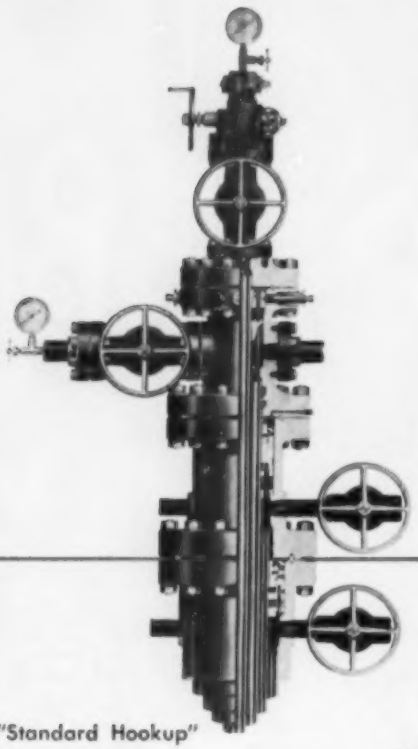
There are other features, too . . . a no-go ring to position the pump in the seating nipple so that sand accumulation is insufficient to sand in the pump, standard-sized A.P.I. balls and seats, and many more that make the H-F 3-Tube the Best Pump in the Oil Patch for sand, or as an all-round pump.

If sand is a problem with you, find out the advantages of an H-F 3-Tube Rod Pump. Ask your store or one of our 70 field men for details, or write us at P. O. Box 2477 in Fort Worth for literature. No obligation, of course.

HARBISON-FISCHER
FORT WORTH

PERFORMANCE AND ECONOMY

for everyday production needs
are built into the
O-C-T "Standard Tree" and
Low Pressure Equipment



O-C-T "Standard Hookup"

C-18-H Casing Head with
T-H-S Flanged Bottom Tubing Head

C-M-T Casing Head and
T-H-S Tubing Head

While the Oil Center Tool Company is noted world-wide for dual production equipment and high pressure trees, the truth of the matter is many completions require what might be called "standard equipment." O-C-T is noted for this, too.

The "Standard Tree" is simply the combination of an O-C-T casing head, O-C-T tubing head, master valve of your choice, and an O-C-T flow control.

Simplicity is a basic part of the standard's makeup.

The new series of O-C-T low pressure equipment combines simplicity and flexibility. Tubing stripper can be used in combination with other equipment if desired, without the necessity for adding stripper housing or bowl. Threaded tubing hangers are available for use with or without the stripper.

(For additional details on the above equipment, write to O-C-T at the address below)

O·C·T

OIL CENTER TOOL CO.

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where progress is a daily practice

60-Second Summary / WHAT'S HAPPENING IN OIL

December 2, 1960

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There's an outside chance that the present concept of octane ratings may be changed. Refiners are concerned because accepted determination methods are too imprecise for blending operations, and there's talk of a major research project to find a new answer. . . . p. 15

•

Socony Mobil's new $3-million computer may some day point the way to optimum field-to-refinery-to-market operations. Right now, the company is limiting the computer to work on light products distribution. . . . p. 18

•

There's a new game in Europe these days: Who knows the price of oil? No one—buyer, seller, or government—appears eager for price information to get around. . . . p.72

•

Venezuela's Juan Perez Alfonzo has weathered the first round of public fire on his oil policies. His reappointment in last week's cabinet shuffle presumably gives him a free hand to move ahead. . . . p. 60

•

Labor-management wage negotiations slowed to a walk this week. A proposed 5% increase has been rejected by the unions, and an impasse appears to have been reached, for the moment, at least. . . . p. 20

•

A new tack must be taken in plastic development if its use is to be extended into new areas. That's the warning sounded by Ford Motor Co.'s T. H. Risk, who says better "working plastics" are needed for the auto and aircraft industries. . . . p. 50

•

Two U. S. companies have jumped into the high-priced land play for offshore Nigeria. Gulf Oil and a Caltex associate are bidding on tracts with premiums of $1.4-million. Shell-BP already has four areas on the continental shelf. . . . p. 59

•

Geochemistry is headed for a major test as an exploration technique on the Upper Texas Gulf Coast. A new company has been formed "to develop exploratory drilling programs based primarily on geochemical methods." . . . p. 34

•

Computer control is now being tried on a 40,000 b/d fluid cat cracker in California. So far, California Standard reports several successful trial runs. . . . p. 49

•

A two-way butane pipeline promises to solve the peak-winter, low-summer demand changes for two Texas City refiners. Texas Eastern Transmission Corp. is finishing a link to its Mt. Belvieu storage depot. . . . p. 44

Up to the Minute / SIGNIFICANT LATE NEWS

December 2, 1960

Shell International's winning bid for Kuwait's choice offshore oil rights includes what amounts to 60-40 profit sharing, though based on the 50-50 principle. Total bonuses would amount to $84-million, depending on ultimate production. Shell will pay $5.3-million immediately. Kuwait will have a 20% carried interest.

•

The Oil, Chemical & Atomic Workers served its first strike notice in the current labor negotiations to Sinclair this week. The union's master agreement with Sinclair covers pipelines, production, research, and five out of six refineries. OCAW has been in a position to call strikes at several other company plants for some time (page 20).

•

Tennessee Gas Transmission Co. plans to realign its corporate structure to separate its regulated operations from nonregulated ones. The company's affiliates engaged in oil and gas producing, refining, and marketing will be grouped together early next year into an integrated operation away from the gas transmission operations that are regulated by the Federal Power Commission.

One step in the reorganization was taken this week with the election of Harold Burrow as president. Burrow, formerly executive vice-president, succeeds Gardiner Symonds, who will continue as chairman and chief executive officer. R. L. McVey, a senior vice-president, is the new executive vice-president.

•

W. R. Grace & Co. will expand its plastics production capacity substantially. Its Polymer Chemicals Division will boost the capacity of the Baton Rouge (La.) polyethylene plant by 50%, and its subsidiary, Cosden Petroleum Corp., is increasing its capacity to produce polystyrene.

•

Oasis Oil Co. of Libya has made its second discovery on concession No. 59. The well, A2-59, flowed 35-gravity oil at a rate of 4,440 b/d from a depth of 6,600 ft. Preparations have been made for two confirmation tests. The latest discovery is 15 mi. north of the first successful test on the concession, and 35 mi. south of Esso's Zelten field.

•

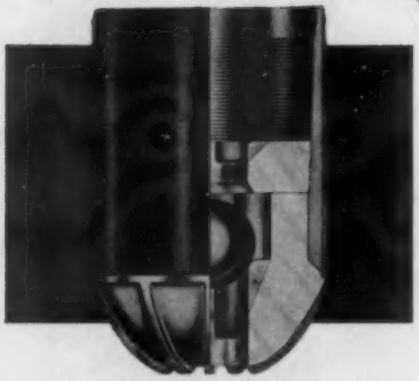
Tidewater Oil Co.'s 150,000 b/d crude unit at Delaware City, Del., is down for turnaround after 723 days of continuous operation. During that period, the unit ran 92.1-million bbl. The plant's 42,000 b/d fluid coker is also down for turnaround after completing a 386-day run.

•

U. S. refining capacity has expanded by 160,700 b/d in 1960, to a peak of 9,922,350 b/d. That is the American Petroleum Institute's estimate of crude charging capacity for the end of the year. An additional 26,500 b/d of capacity will be added by next Sept. 30.

"for a sure thing in cementing—

PUT YOUR MONEY ON THE NOSE"



RECTOR TYPE "A" FLOAT SHOE

Precision machined from seamless steel tubing. Internal parts are high-strength, drillable aluminum alloy. Moulded rubber-covered float ball insures positive seating.

DRILLABLE ALUMINUM NOSE MAKES RECTOR TYPE "A" CEMENTING EQUIPMENT A WINNER EVERY TIME

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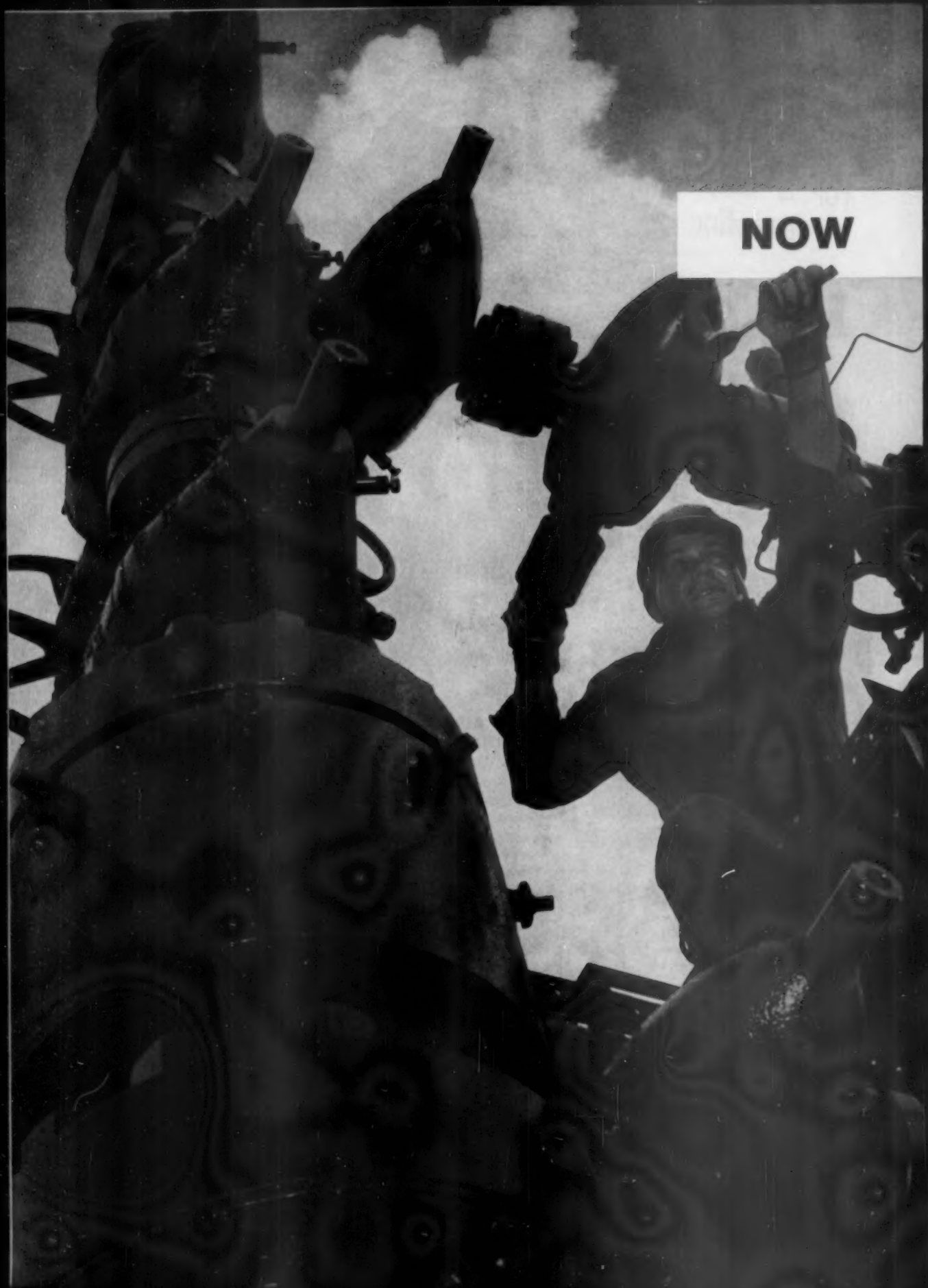
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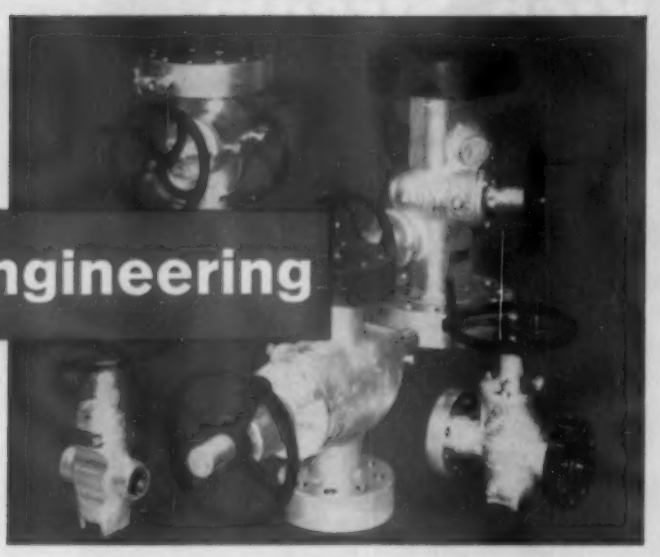

Top left to right: Integral Dual Completion Gate Valve; Integral Triple Completion Gate Valve. *Bottom left to right:* Recessed Body Gate Valve for Triple Completions; Balanced Stem Gate Valve; Standard Production Gate Valve.

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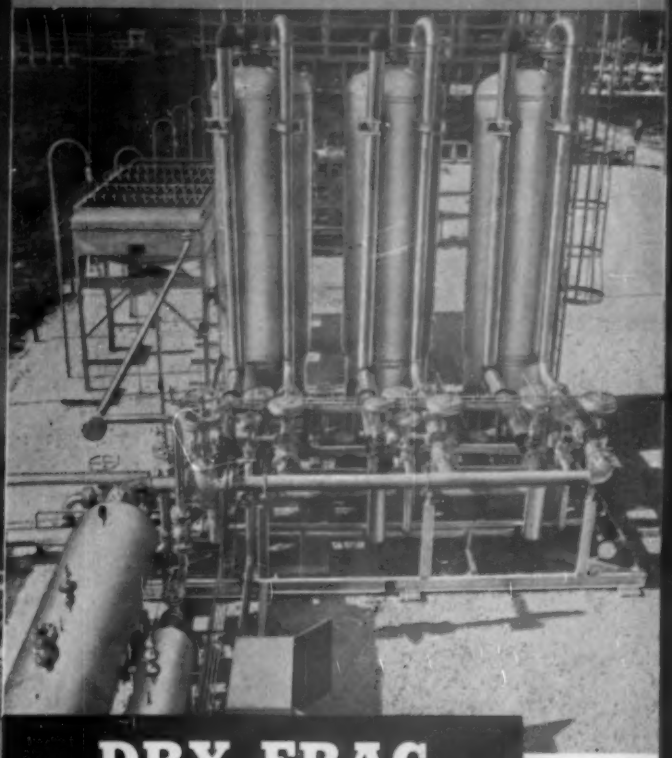

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Octane Scale Change Is Debated

This is the problem:

● Refiners have found that greater accuracy is needed in determining octane numbers for blending purposes. It's a $10-million-a-year headache.

This is being talked about:

● A research project is needed to find the answer—possibly a new concept that could outdate present data and arouse much controversy.

A "numbers game" problem spawned by the octane race is posing Frankenstein-like troubles for refiners now, and possibly, for gasoline marketers in the years to come.

A decision is still well down the road.

But the problem is coming to a head—and it has the potential of kicking up a first-class fuss that'll keep the industry in a swivet for four or five years, or more.

In brief, it's an offshoot of the decision, made several years ago, to extend the present octane scale above 100—a decision necessitated by the quality race among competitive oil companies.

Some of the best brains of the industry have been engaged in a mild tug-of-war so far—not over the problem itself, but over which way to go.

This is most important, since it could lead to a change in the present concept of octane ratings. Discussions up to now, have been fairly informal, but there are enough differences of opinion to make it a touchy subject in many areas.

The immediate problem is this: Extension of the octane scale over 100 has made refiners realize that present methods for determining octane numbers for blending purposes simply aren't precise enough to do the job any more.

Most refiners are using the time-honored research and motor methods, aided and abetted by a variety of formulas and tests of their own making.

But they have found that these aren't accurate enough now to give them what they need most—a hairline determination that will hit octane numbers right on the nose.

What makes this important is that a deviation of one-half octane number in blending operations can cost the industry as much as $10-million a year.

The extent of the problem can be realized from the fact that most refiners overblend rather than take chances of falling below specifications.

In so doing, they are forfeiting the opportunity to achieve maximum economy in their blending. And this hurts when the industry as a whole is as cost-conscious as it is now.

It used to be, when octane numbers were in the 70-to-90 range, that the research and motor methods were adequate measuring sticks.

But as the octane race of the post-war years pushed the scale higher, to 100 and over, blending accuracy took on new significance.

Each increment above 90 in the scale had more effect on performance than a corresponding increase in the 70-to-90 range. And refiners found that the higher they went above 90 octane, the more imprecise present methods became.

Present methods, according to the book, are supposed to determine an octane number within three-tenths, plus or minus, of the true number.

But in actual practice, without supplemental tests entailing both time and money, the degree of accuracy averages closer to five-tenths, plus or minus, than the three-tenths figure.

This means then that a fairly wide margin of error exists in blending operations. And cost-conscious refiners are most anxious to find an improved method—or even a new method—to reduce this to a minimum.

It is possible that a research project may be initiated in a year or so to resolve the problem—but much spadework must precede this.

At the American Petroleum Institute meeting in Chicago last month, several committees of the Division of Refining did talk along these lines.

One committee suggested that a research project could be undertaken by API—on behalf of the industry—in 1962 or thereabouts.

Money would have to be provided to underwrite the study, and the ball already has started rolling. There are many ifs, ands, and buts that must be cleared up by next spring, however, if this is to materialize.

Private guesses about the cost of such a project range from several hundred thousand dollars to a million or more.

In the same vein, various sources estimate, it would take at least two years, under the most perfect conditions, to find an agreeable solution.

But the likelihood is that it'll take four to five years to come up with an answer, and get the concurrence that it must have to be effective.

This is assuming, of course, that refiners, automobile makers, and others can agree on the proper approach to the problem.

This has been the bugaboo in all preliminary discussions.

Some old timers feel strongly that the integrity of the present octane scale should be preserved, even though the formula extending it above 100 left an uneasy feeling among refiners and others after its adoption several years ago.

Others point to the fact that the present scale is still based on the performance of a 1932 test engine, and that all data since then are merely correlations of those standardized results.

They feel that perhaps the best way to find the answer would be to start all over again, with a more up-to-date engine, and the more advanced knowledge that the industry now has on fuel characteristics, performances, and future requirements.

They point out that compression ratios have changed so much in recent

years—as have gasolines, too—that modern engines have noises, thuds, and digestive problems that never existed in lower compression ranges.

Several approaches already have been suggested by oil companies and others. Each has its virtues and its drawbacks, so that proponents and opponents must resolve these differences first before they can go ahead.

But if the present concept of octane ratings is changed, it could make all contemporary data on gasolines obsolete.

That's one thing that is worrying many refiners and engineers right now.

Throughout the nearly 30 years that the present octane scale has been in existence, much historical data has been prepared, particularly the studies and findings of the American Society for Testing Materials.

These have been incorporated into basic handbooks, not only in the oil industry but throughout the automotive industry as well.

Thus, if changes are substantial, all this data will have about as much value as yesterday's newspaper.

Technically, this is a refiners' problem—but the implications are broad, and could be felt all the way down to service stations and in sales promotion campaigns.

Anything that affects gasoline—the industry's No. 1 product, and its No. 1 revenue-producer—is of importance to marketers everywhere.

Most of the industry's postwar advertising and promotion campaigns were based on the quality theme—the upgrading of gasoline to 100-octane and above.

True, higher-compression engines did require higher-quality gasolines—but hand in hand with that went the prestige factor—the need to keep up with the competition publicly—and many persons feel that this acquired an artificial importance. As one result, many cars on the road today are using gasoline far superior to their actual requirements.

Now, as one refining expert points out, what happens if the octane ratings are revised? Or a new concept of fuel performance and reference data is substituted for the conventional octane scale?

The 100-octane number is the symbol of gasoline quality today—and it could take years to create a new image in the public mind. This is only a possibility, of course, but it is one of the many tangents of the refiners' current dilemma.

The problem is enormously complex and, in the months to come, it is sure to stir up much controversy throughout the industry.

Courts Next on Gas Price?

The Federal Power Commission has officially rejected seven requests for rehearing of the Phillips Petroleum Co. natural gas rate case, clearing the way for possible appeals to the courts.

FPC found that the requests for reconsideration of the Phillips case "set forth no new facts or principles of law which were not fully considered by the commission."

Rejected were applications by Minneapolis Gas Co., the State of Wisconsin and the Wisconsin Public Service Commission, Public Service Electric & Gas Co. (N.J.), the State of California and the California Public Utilities Commission, and a group of eastern seaboard gas distribution companies.

FPC also has affirmed its secretary's order rejecting two appeals from its new area-pricing policy, which was announced in September simultaneously with the decision to terminate the Phillips rate investigation.

The area-pricing pronouncement largely replaced the Phillips case as a landmark in regulatory policy for natural gas rates charged by producers.

Industry lawyers differ on whether an appeal of the Phillips case proper or the area-pricing plan, or both, would be the simplest approach to determine the legal standing of FPC's action on producer regulation.

The commission has held that its area-pricing plan cannot be considered for rehearing because it is a commission policy statement, not a case decision.

Industry observers in Washington expect one of the rejected companies or state regulatory bodies to appeal the Phillips case and/or the area-pricing policy to a U.S. Court of Appeals.

There is also some thought, however, that no appeal may be tried until FPC rules on a particular case under the area-pricing policy, and a party involved in the case decides to seek relief through the courts.

Third Algerian Crude Line Set

The French Council of Ministers has approved a new Saharan pipeline to move the first American-produced crude—Socony Mobil's—out of Algeria.

The new line, which would be the Algerian Sahara's third, will connect the Ohanet discovery, near Tunisia, with Hassi Messaoud, Algeria's largest field, 275 mi. to the northwest. From Hassi Messaoud, Ohanet crude would be moved to the port of Bougie via a presently operating 24-in. line.

Mobil holds a 25% interest in the Ohanet field, which was discovered last April. Cie D'Exploration Petroliere, the operator, has a 38% interest, and the remaining 37% is split among one Italian and three French firms.

The projected pipeline would be 342 mi. long, and crude would flow by gravity. Diameter of the pipe has not yet been decided.

The plan calls for bypassing a nearer 24-in. pipeline, which carries crude from four eastern Algerian fields to La Skhirra, Tunisia. While this second line is just 75 mi. from Ohanet, a pipeline link to the field would require construction of a pump station.

Also, the French government, it is reported, is considering routing the projected Ohanet line through El Gassi-El Agreb field, where it could pick up newly developed production of the French firm SNPA.

If that is done, the need for a previously announced 10-in., 75-mi. pipeline from El Gassi-El Agreb to Hassi Messaoud (PW—Nov.25'60, p35) would be eliminated.

More U.S. Imports Of Canadian Oil

Two new customers will be running nearly 12,000 b/d of exempt Canadian crude this month.

Gulf Oil Corp. will take 5,000 b/d of light Alberta oil for its Toledo (Ohio) refinery, and Mobil Oil Co. will use 6,750 b/d of light crude at its Trenton (Mich.) plant. The shift to the Canadian oil, exempt from mandatory import controls, had been expected (PW—Oct.21'60,p24).

Total exports of Alberta crude to the U.S. this month will average 62,475 b/d, up 3,075 b/d.

And the estimates submitted to the Alberta Oil & Gas Conservation Board show that January's exports will rise to 69,650 b/d. Nearly all of the increase will be in the Great Lakes region, according to purchasers' bids.

Private Users Hit Attempt to Curtail Their Microwave Use

The battle lines shaped up once again this week between private users of microwave bands and the American Telephone & Telegraph Co.

The stage for the latest contest for certain microwave radio bands that have been reserved for private users was set in late October when AT&T filed applications with the Federal Communications Commission for an experimental license to construct a test satellite system for international communications use.

This week the Central Committee on Communications Facilities of the American Petroleum Institute filed a petition asking FCC to deny the application. API was joined in its opposition by the National Assn. of Manufacturers, The American Trucking Assns., and the National Committee for Utilities Radio.

Specifically, AT&T wants to launch an experimental satellite to provide space communications between the U.S. and Europe. It would use frequency bands that have been set aside for non-common-carrier users.

The move by AT&T was the subject of much discussion by several committees of the API Division of Transportation at the recent annual meeting in Chicago.

The greatest concern was voiced by pipeline companies and offshore operators, which are the major users of microwave transmission in the petroleum industry.

It also sparked a storm of protests from other private users of microwave radio.

In effect, the private users claim that AT&T, which early in October lost a major decision before FCC over allocation of microwave bandwidths between private and common-carrier users, is attempting to "grab off" the frequencies by linking them to space communications.

The committees of the National Assn. of Manufacturers and the American Trucking Assns. told FCC bluntly: "It appears to us that the primary purpose of the AT&T petition is not to conduct experimentation in the non-common-carrier microwave bands, but to undermine the commission's recent microwave decision, by closing out use of the non-common-carrier bands for the purpose intended by the commission, with the ultimate view of preempting the private microwave spectrum space and, in this manner, obtaining by indirection what the commission refused to grant directly—namely, the use of all microwave space for common-carrier public correspondence.

The oil industry's position is that, while satellite communications development is important, an "equal or more forceful position can be advocated for development of terrestrial microwave."

"In view of the obvious adequacy of existing microwave spectrum already available to common-carrier services," API told FCC, "the Central Committee is at a complete loss to understand why AT&T insists on utilizing on a shared basis the operational fixed microwave frequencies. The Central Committee is aware of no evidence of common-carrier congestion in the 6,000 megacycles portion of the spectrum allocated for common-carrier use so as to preclude satellite operations in both the experimental and early commercial applications of the new communications art."

Industrial users challenged the inference of AT&T that it needs the particular bandwidths sought for experimental space communications.

The proposal submitted in the AT&T application is to transmit to the satellite on 6,775-6,875 megacycles. The satellite would shift the incoming frequency band by 350 megacycles and transmit to earth in the 6,425-6,525 megacycle bandwidth —part of the band reserved for private users.

Eventually, AT&T proposes to provide full-scale communications service using four 100-megacycle bands, which, with necessary guard bands, would occupy the full band of 6,425-6,925 megacycles.

By 1980, AT&T predicted, a minimum of four blocks of frequencies, each 500 megacycles wide, would be needed.

AT&T said it selected frequencies in the 6,500-megacycle band because it would allow the use of presently available "traveling wave" tubes in satellites.

API challenged that view and asked why the same traveling-wave tubes cannot be used in the 6,000-megacycle band.

"Certainly, traveling-wave tubes are available on a commercial basis for use in this portion of the frequency spectrum as well as the portion requested by AT&T," it said.

The battle between private users of microwave radio and common carriers, particularly AT&T, has been running for several years.

In numerous appearances before FCC and congressional committees, AT&T has sought to restrict the growing use of microwave bands by industrial firms. But the latter have argued that private bands are essential to their operation, particularly in cases where data transmission is being used for automated operations.

Observers speculate that FCC is unlikely to issue any ruling that would upset its basic contention that private users require microwave frequencies.

And as the matter now stands, FCC is expected to rule within a few weeks on the AT&T petition—without going into public hearings that could result in months of delay and draw the ire of Congress and the National Aeronautics & Space Administration.

Texas Allowable Transfer Denied

Atlantic Refining Co. and Tidewater Oil Co. were turned down this week in their attempt to obtain allowable-transfer plans for the East Texas field.

The Texas Railroad Commission, in a brief order, said:

"The proposal was to shut in, at operators' option, thousands of oil wells in the East Texas field and transfer the oil allowable to other wells on the same lease.

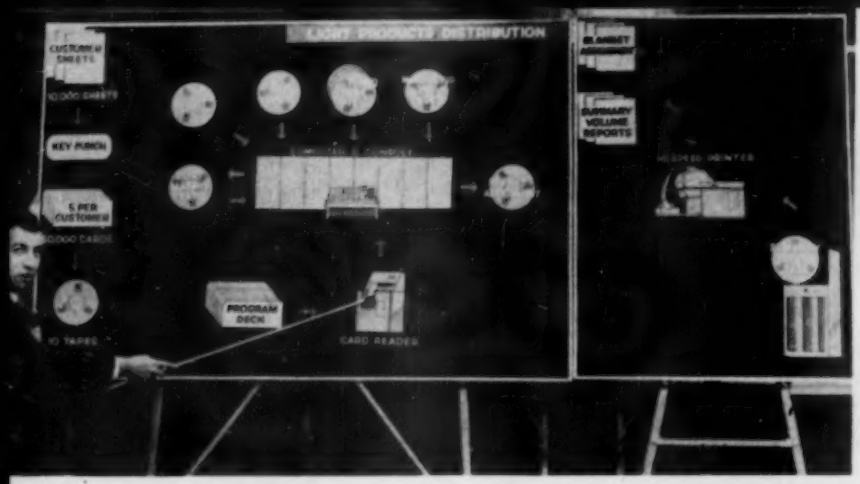
"It was not shown that greater recovery of oil would result by reason of the requested optional transfer of allowable."

Numerous civic groups had opposed the plans on the ground that the area's economy would be injured (PW—Sep.23'60,p25).

Opposition stemmed from anticipated loss of jobs, particularly from well-servicing operations. It was estimated that 10,000 of the 19,000 wells in the field could be closed.

Atlantic had calculated that operators would save perhaps $70-million in costs during the next 50 years.

Still pending is a decision on whether future waterfloods and pressure maintenance projects should be subject to proration. The commission held a hearing on this last summer (PW—Jun.24'60,p23).



HOW THE COMPUTER (right) helps solve a problem in light products distribution is explained by Socony's Dr. Julius Aronofsky (left). Key to the technique of the system is 10,000 "customer" sheets, forecasting demand at the local level.

Computer Links Markets to Refineries

Socony Mobil Oil Co. this week unveiled a new $3-million computer that will go a long way toward providing the "missing link" in using market data to control refinery operations directly and automatically.

Mobil has installed the IBM 7090, the largest commercially available computer, at its New York headquarters. Mobil is one of the first companies to apply the 7090 to the oil industry. Standard Oil Co. of California is another (page 49). Other oil companies have ordered the 7090.

Ultimately, the computer will be used to relate marketing data all the way back to the oil field, to assure optimum crude supply for the company's refineries.

"The 7090 will show us how to develop the most economical means of selecting the type and source of crude best suited for each refinery," says Dr. Julius Aronofsky, manager of the company's electronic computer center. "It will help us decide what products to make, and how much of them, for each market. And then it will help show the lowest-cost way to get the products to market."

That has been a long-sought dream of most oil companies.

Mobil says it is now leaving the experimental stage with the computer and entering the operational stage.

"The purpose of the studies to date have been to demonstrate that computer results are reliable and just as good as older procedures," Aronofsky says. "We've successfully passed the check-out stage."

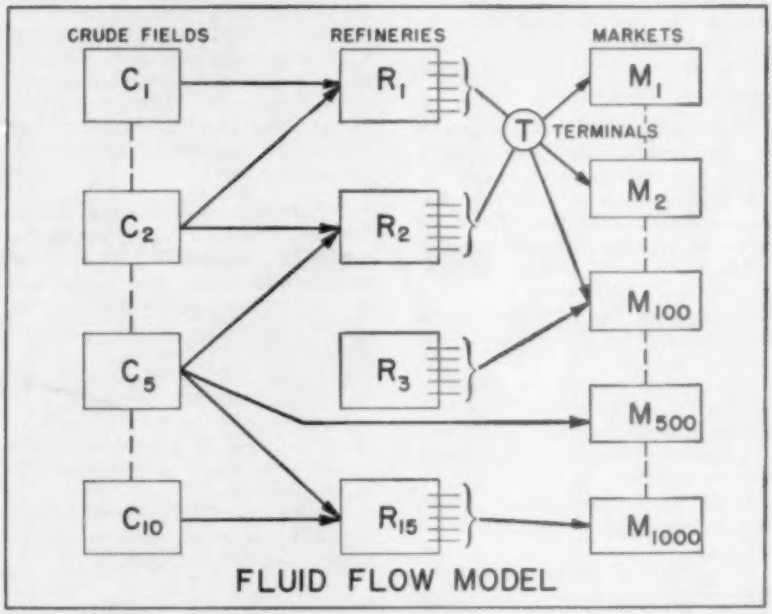
For the present, Mobil is emphasizing distribution of light products in the U.S.

Aronofsky sums up the operating plan this way: Identify your markets, forecast demand, and feed the results into a computer where you've prestored all refinery costs and capacities, and all transmission costs and capacities.

The computer will then come up with a scheme that is the cheapest to serve your market requirements.

With the basic data prestored, the computer will then be set to provide detailed answers for each problem assigned to it.

These answers will show the volume of products needed in a market, which refinery should fill the requirement, the type of feedstock to use, the optimum processing plan, and the most economical transportation from plant to market.

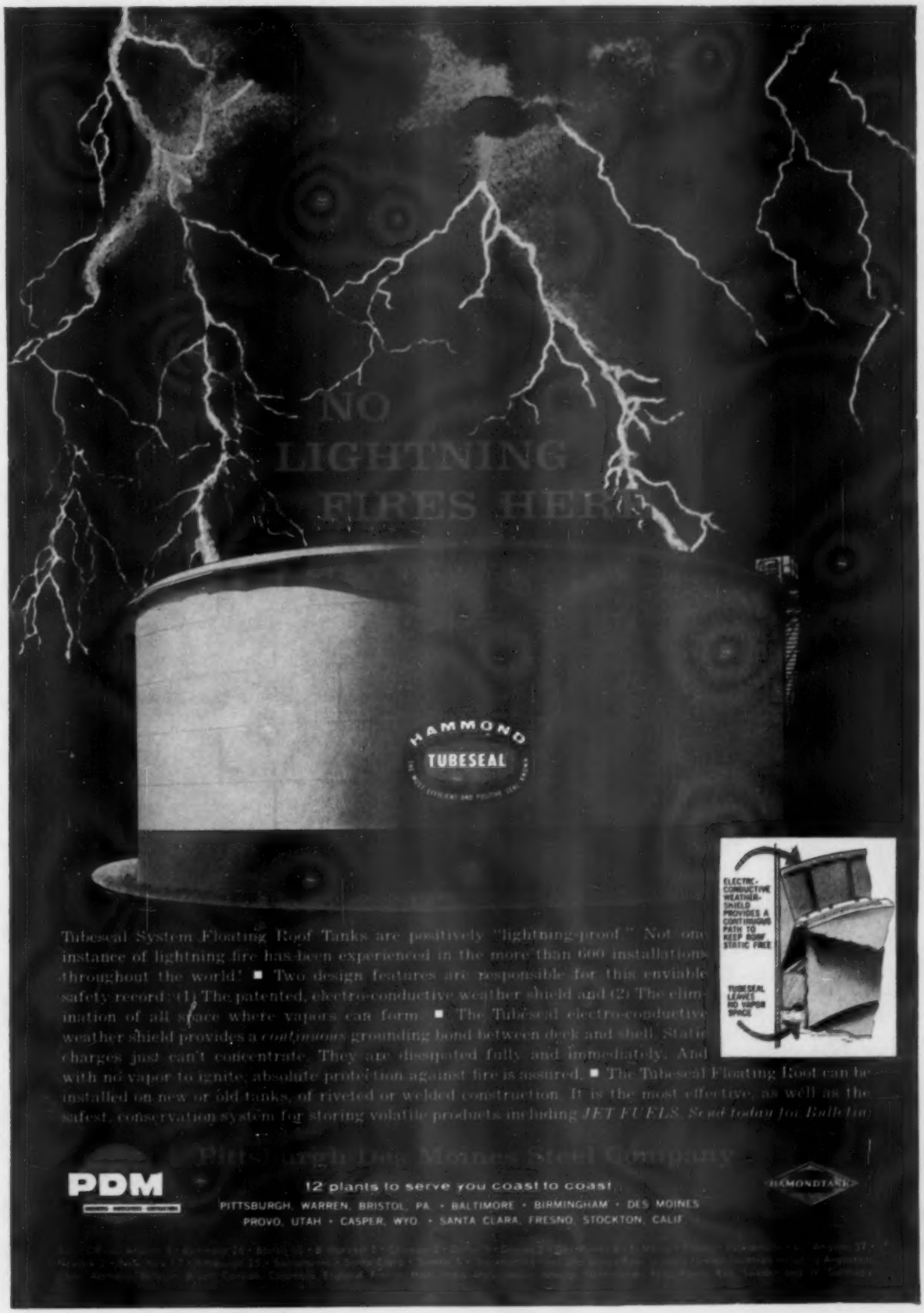


FIELD-TO-REFINERY-TO-MARKET "fluid flow" chart has been set up by Socony to show the arrangement for optimum operations. The arrows are transportation links.

The company has divided its overall domestic marketing areas into 10,000 "destinations." Programs for 4,000 of these—all in the Midwest—have been completed by the computer.

In addition, the computer department has developed, and stored in the 7090, a master file of 300,000 transportation rates in such a form that they can be retrieved, updated, or modified.

Mobil expects to save about $4,000 a month in total computer lease charges with the new unit, as



Tubeseal System Floating Roof Tanks are positively "lightning-proof." Not one instance of lightning fire has been experienced in the more than 600 installations throughout the world! ■ Two design features are responsible for this enviable safety record: (1) The patented, electro-conductive weather shield and (2) The elimination of all space where vapors can form. ■ The Tubeseal electro-conductive weather shield provides a *continuous* grounding bond between deck and shell. Static charges just can't concentrate. They are dissipated fully and immediately. And with no vapor to ignite, absolute protection against fire is assured. ■ The Tubeseal Floating Roof can be installed on new or old tanks, of riveted or welded construction. It is the most effective, as well as the safest, conservation system for storing volatile products including *JET FUELS. Send today for Bulletin*

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compared with the two machines it is replacing. Mobil pays $65,000 a month rental for the new unit.

Additionally, the new computer is roughly six times faster than the IBM 704 and 650 it is replacing, and it has greater flexibility for handling problems during peak loads, the company says.

In terms of computer time, the 7090 can solve problems in 20 hours that would take the 704 (formerly the fastest IBM system that Mobil leased) 100 hours.

It also requires less floor space and uses less air-conditioning to keep it cool.

Mobil says the unit will free distribution people to spend more time on planning.

Mobil has plans expanding the use of computers in its future operations.

"We are thinking in terms of a network of computers for the future," Aronofsky says. "All units would be connected by data transmission links. This network would be structured with a large number of small computers, say 50, located close to field operations, handling a large amount of numbers.

"Then there would be a fewer number of large computers, say five, that would receive information from the small computers, and also perform extensive calculations related to major facilities (accounting centers, refineries, etc.).

"Also, there would be at least one major computer installation that would be linked to the large and small units. To date, the 7090 series is our largest installation.

"As much as possible, work will be done by the small computers. If they can't handle it, the larger units will take over. This setup gives up tremendous flexibility, by allowing any branch of the company to use the computer network."

Mobil now has nine computers in six cities, including a medium-scale unit in Caracas, Venezuela. The others are in New York (2), Dallas (3), Los Angeles, Paulsboro, N.J., and Beaumont, Tex.

"We are also working on a program for more efficient distribution of light oils overseas, and for lube oils in the U.S.," Aronofsky says.

Unions Reject 5% Offer, Seek More

Scattered offers of a 5% wage increase had many oil company employees speculating this week: Are we or are we not going to get a raise—and if so, how much, and how soon?

Union and nonunion employees alike kept their eyes riveted on current wage negotiations. But for the most part, there was more talk-talk-talk this week than positive action.

At first, it seemed that the 5% proposal might become the pattern for settlement of union demands for an 18¢-per-hour raise—but the Oil, Chemical & Atomic Workers Union quickly turned thumbs down on that.

The companies that had made the proposal had stipulated that contracts be extended for two years, and the usual wage reopener clause waived.

OCAW said this represented a two-year wage freeze, and, additionally, the proposal was in a percentage form instead of cents-per-hour, and didn't come close to the union's goal of 18¢.

"It's too small," a spokesman said. "If you split it up between two years, it doesn't mean much. If it was a 5% offer for one year, that would be different."

On a cents-per-hour basis, the 5% proposal is equal to about 14.5¢ to 15¢ per hour. In one way, that's within 3¢ of the union's goal—but spread over two years, it falls far short.

Companies that offered the unions a 5% increase seemed to be out on a limb, for the moment, as most of the others quietly and speculatively watched the proceedings.

American Oil Co., and its parent, Standard Oil Co. (Ind.), made the original proposal. Atlantic Refining Co. and Sun Oil Co. followed suit.

Mobil Oil Co., whose divisions bargain on a local basis, reported that four offices in Houston, Midland, Denver, and Augusta, Me., had made 5% offers to local unions.

Several small refiners, such as Husky Oil Co., Denver, and Rock Island Refining Corp., Indianapolis, came up with 5% proposals too.

Most bigger companies, including Humble, Shell, Texaco, Gulf, Sinclair, Tidewater and Cities Service maintained discreet silence.

One of the independent unions negotiating with Indiana Standard accepted the management proposal, but two others rejected it, and made counterproposals.

It could be that there's some hard bargaining ahead before the wage situation is clarified.

Management's attitude seems to be that 5% is tops. And OCAW seems determined to stick to its 18¢-an-hour goal. Thus, it would appear that an impasse has been reached.

The one point that intrigues observers and company officials alike is this: How come so much was offered so soon?

Meanwhile, union employees at the Baytown (Tex.) plant of Humble Oil & Refining Co. girded for a runoff election next week for bargaining rights, to be held next Thursday and Friday.

In the last election, the Baytown Employees Federation and OCAW wound up in a tie.

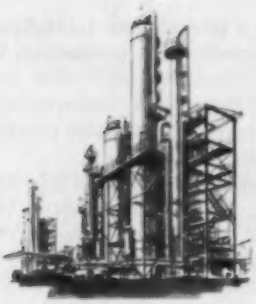
Wages Are Up $1,300 in Four Years

If the 5% offer becomes the basis for settlement of current union wage negotiations, it will mean that pay increases over the past four years have aggregated $1,300 per employee, on the average.

This is considerably below the unions' asking price—but it does give an index of the increased costs that refiners have been compelled to absorb since 1956.

This is what the picture looks like:

Year	Asking Price	Increase Received	Annual Average Per Employee
1956 (February)	30¢ per hr.	16-17¢ per hr.	$345
1957 (May)	27¢	18¢	$375
1959 (January)	25¢	13.5¢	$280
1960 (November)	18¢	?14-15¢? (offered)	$300
		Total	**$1,300**



These valves, produced by a new manufacturing concept and incorporating the exclusive rotating seat principle, assure astounding improvements in service life, ease of operation and reliability. This makes practical – for the first time – the "sealed for life" construction.

No lubrication + No glands + No bonnet gaskets = No maintenance. With no maintenance expense for lubricants, labor or down-time, the Cameron Ball Valve (which is competitively priced) is certainly the most economical valve available as extensive tests and many installations have proven that it will outlast usual expectations by many times.

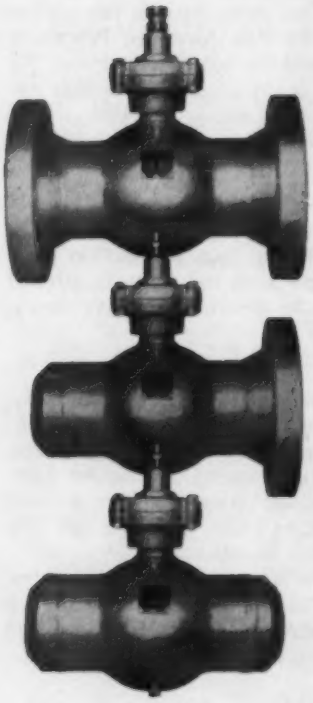
NO LUBRICATION
No worries with lubricating procedures or line contamination.

NO MAINTENANCE
Sealed for life.

BUBBLE-TIGHT
Seals both upstream and downstream—body can be bled and flushed.

ROTATING SEATS
Increases normal life expectancy by three to four times.

EASY OPERATION
Cannot freeze or stick.



WHY CAMERON BALL VALVES?

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Maximum simplicity. Minimum size and weight.

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What's New / IN THE INDUSTRY

The exempt allowable in Texas reached a new high of 1,216,821 b/d at the end of November, equal to 51.2% of actual crude production. Compared to the total average calendar day allowable, the allowable exempt from shutdown days now amounts to 45%. Because of underproduction, the amount of oil included in the exempt is greater than actual production in three of the twelve Railroad Commission districts.

In District 1 (Southwest) the exempt allowable amounts to 43,945 b/d while actual production averages 43,000 b/d. In District 9 (North Texas), the exempt allowable totals 208,802 b/d while production averages 196,000 b/d. And in District 10 (Panhandle), the exempt allowable is 107,544 b/d with production averaging 100,000 b/d. In three other districts, Gulf Coast, East Central, and West Central (District 7-B), the exempt allowable is more than 50% of actual production.

•

Montana-Dakota Utilities Co. has filed exceptions to a Federal Power Commission examiner's recommendation that production of oil by gas injection is more in the public interest than sale of gas (PW—Nov.25'60,-p13). The utility contends that 15 mi. to 20 mi. away there is enough gas to carry out the secondary project planned by Pan American Petroleum Corp. and Ohio Oil Co. It says the gas could be obtained and that the companies had actually been negotiating for it. Montana-Dakota says approximately $400,000 would have to be spent to use it, and that, if Pan Am and Ohio did use it, they wouldn't need the gas now being sold to Montana-Dakota.

•

Caltex and Shell are both ready to push refining plans for southern Africa. Caltex has completed surveys for a 30,000 b/d, $37-million plant projected for the Union of South Africa. And Shell has formally advised Rhodesia that it's ready to submit a proposal for a refinery in that country.

•

Texaco Inc. hopes its proposed benzene plant at Port Arthur, Tex., will help reduce dependence on European and Iron Curtain imports. M. F. Granville, vice-president in charge of Texaco's petrochemical department, says the new plant will help not only to meet increasing demand for high-purity benzene but also to free domestic chemical companies from dependence on European and Iron Curtain sources. In 1959, he noted, the U.S. imported over 44-million gal. of benzene from Russia alone.

The new plant, which is expected to go on stream in the second quarter of 1962, will produce up to 30-million gal. of benzene a year. Most of it will be marketed to other U.S. chemical companies, although Texaco will use a substantial amount in its large, recently completed cumene plant.

•

Oklahoma's crude allowable for December has been upped slightly to 515,000 b/d. The basic well allowable was raised from 15 b/d to 17 b/d, which is the highest level since the 18 b/d allowable set last April. The increase is also effective for January, but the case was left open so that the January figure could be changed without another hearing—if market demand conditions warrant.

•

A substantial reduction in the price of general-purpose polystyrene and polystyrene blends was made this week by Foster Grant Co., Inc. The price reduction from 21½¢ to 19¢ per lb. for volume sales, is the first affecting this petrochemical for the past 18 months.

Schlumberger Sonic and Resistivity Logs Simplify Oil Finding!

Oil and gas horizons are graphically identified by simple comparisons of Sonic and Resistivity data. These fast methods of interpretation are appropriate for well-site application. Potentially productive zones thus found can be further investigated by quantitative methods—or can be checked by sidewall cores and formation tests.

Ask a Schlumberger engineer in your area to demonstrate the benefits you can derive from Sonic and Resistivity Logs in your well program.

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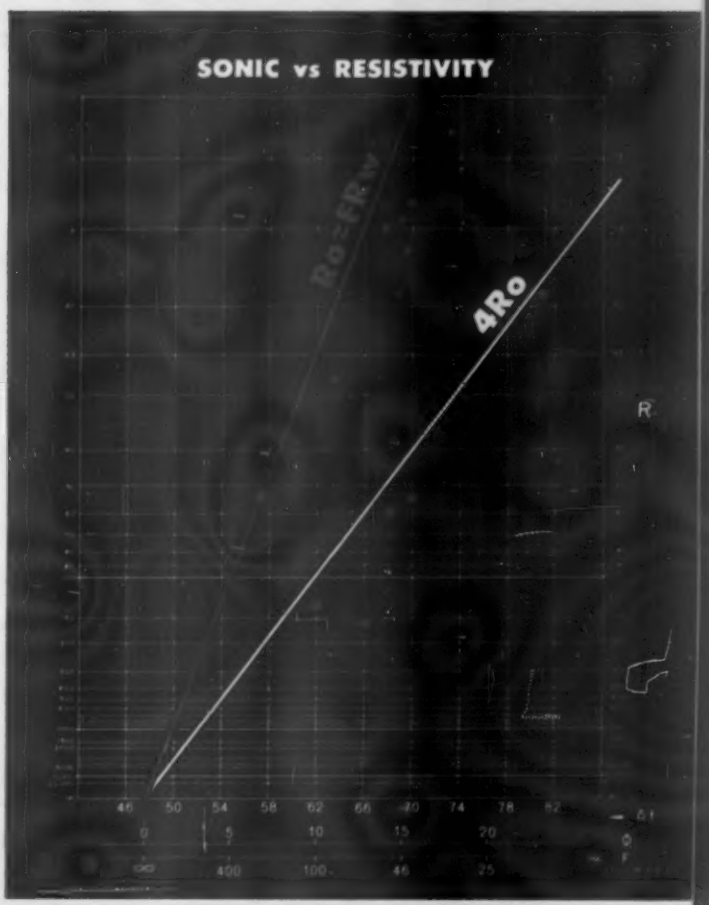
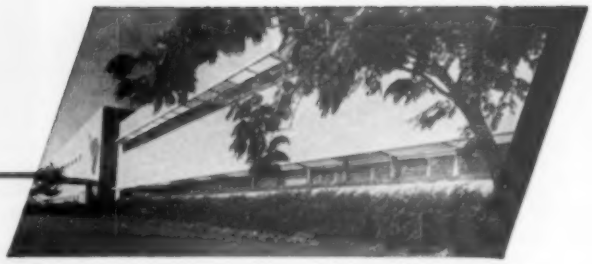


RESULTS START HERE!



What are the things you expect everytime you specify *Halliburton* for your fracturing operation? An experienced crew working with the most modern fracturing equipment ... the latest fracturing materials ... the *best* from a wide selection of fracturing techniques to help obtain a successful job. You may be familiar with these ... but what about the wealth of experience, facilities and activity of the research men who make up the Halliburton team behind the fracturing crew? These advantages are yours, too ... when you specify Halliburton:

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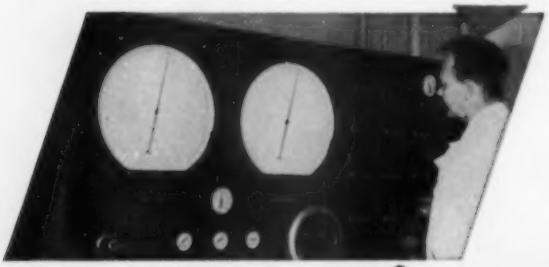

M R D (Mechanical Research and Development) ... Here, millions of dollars and thousands of man hours are invested in improving current fracturing equipment ... and developing completely new ideas to do a job better – faster – more economically than ever before.

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FIRST ... AND STILL FOREMOST ... IN FORMATION FRACTURING

Looking Ahead in Washington

McGraw-Hill
Washington
Bureau
December 2, 1960

President-elect Kennedy will get a report this month that may set the tone of Washington regulatory agencies for the next four years.

The preliminary report will come about Dec. 15 from James M. Landis, Kennedy's chief advisor on regulatory matters. Landis has set up a Washington office for his study of the federal agencies. He is mainly looking for ways to improve their efficiency and speed up decision-making, but his work also may give some indications of how the agencies will use their regulatory powers.

•

Meanwhile, an Eisenhower-ordered study of the federal agencies is making some headway. A group headed by Judge E. Barrett Prettyman, of the U.S. Court of Appeals for the District of Columbia, has taken a tentative step toward improving the efficiency of government agencies. The Prettyman committee is laying the groundwork for a permanent administration conference to make a continuing study of the problems and procedures of the federal regulatory bodies.

•

The Pentagon expects to have some guidelines on cutting overseas spending within the next week or so. Military petroleum buyers say they won't know whether the recent Eisenhower cutback order will affect oil purchases until they receive word from the top.

•

Watch next month for committee assignments in Congress. There is a vacancy on the powerful Senate Finance Committee.

The committee's makeup will be important if depletion becomes a major issue during the Kennedy administration. The vacancy was caused by the defeat of Sen. Allan Frear (D., Del.), a depletion supporter. "Liberal" Democrats hope to get one of their own on the committee to support Sen. Paul Douglas (D., Ill.) and the antidepletion minority. The same bloc would like to take the chairmanship from Sen. Harry Byrd (D., Va.), who did not endorse Kennedy for election.

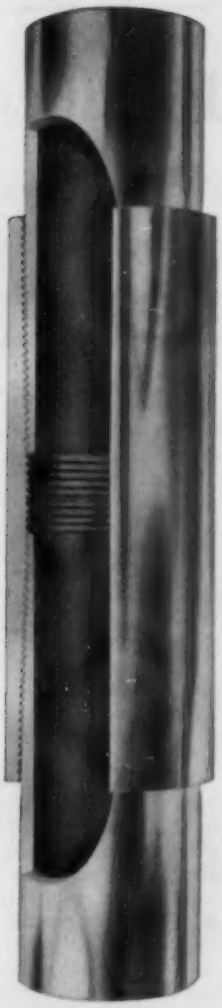
•

Some Interior Dept. officials still want action on residual fuel oil import problems before the GOP leaves office. Although Under Secretary Elmer Bennett has postponed the question of expanding the number of residual importers until second-quarter allocations are set, there is some movement for a decision before Democrats take over in January.

•

Congressional leaders are ready to push new legislation for water-pollution control. Democrats on the House Public Works Committee are unimpressed with the Eisenhower Administration's record on pollution abatement. They are unenthusiastic about an administration-sponsored National Conference on Water Pollution, to be held in Washington Dec. 12-14. Instead, they are preparing a bill to step up construction grants for sewage-treatment plants, boost enforcement authority, and make water pollution an independent office outside the Public Health Service.

Something new in the oil country



USS National Buttress-Thread Tubing

National Tube, developer of Buttress-Thread Casing, now introduces Buttress-Thread Tubing.

This new joint has tensile strength comparable to that of the body of the tubing. Since there is no upset, you get maximum hole clearance and less interference when running. Rugged, flat-crested threads have good stabbing characteristics, better resistance to joint damage and faster make-up. Buttress-Thread Tubing has extended life in service because it can be threaded in the field at authorized machine shops. Tin-plated coupling threads offer you gas-tight joints and reduce your make-up torque. For complete information on Buttress-Thread Tubing, write or call National Tube Division, United States Steel, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

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Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors
United States Steel Export Company, New York

This mark tells you a product is made of modern, dependable Steel.

Watch United States Steel's special Christmas show, **The Coming of Christ**, in Color on NBC-TV, Wednesday, December 21, 8:30 P.M., E.S.T.

Producers Ponder Test Method As FPC Sharpens Reserves Look

Some industry sources feel the "reservoir limit test" should be acceptable by regulatory officials in determining in-place natural gas reserves where pressure decline data isn't available.

This week, FPC officials indicated that earlier signs pointing toward a more searching look on reserves and deliverability were correct (PW—Oct. 21'60,p23).

One of the reasons for commission concern, it was explained, is the currently low level of drilling activity. The FPC staff also believes that some transmission firms don't maintain large enough staffs to keep their geological data up to date.

Commission sources say, however, that pipeline companies with current information and complete pressure decline data on all reserves can expect little difficulty.

FPC officials use "flow test" and "pressure decline" more or less as interchangeable terms. They hinted that the volumetric method may be acceptable for unconnected reserves.

While it wouldn't solve all the problems they foresee, some industry sources familiar with reservoir work think the "reservoir limit test" method could fit in as an intermediate technique between the pressure decline and volumetric methods.

The reservoir limit test isn't entirely new to reservoir analysts, although the test has not been utilized extensively.

The method has been taught for some time in the University of Houston's Petroleum Engineering Dept., for instance, and has appeared several times in industry literature.

The technique reportedly is being used, to some extent, by at least one transmission company, and very possibly by other transmission and operating companies.

But it is not in every-day use.

Working on the principle of reducing well pressure by production and run with transient flow conditions existing in the reservoir, the method reportedly permits determination of reservoir boundaries.

The well must be completed and cleaned out so that there is no mud between the bottom of the tubing and the perforations, with the tubing end placed as near the perforations as possible.

The well is flowed to remove all foreign material, then shut in to allow pressure to build up.

Two pressure bombs are run into the hole in tandem, with clocks set for different time intervals and adjusted according to permeability of the zone to be tested.

The well then is flowed at a constant rate, and surface pressure measurements are taken with a dead weight tester.

(There is a difference of opinion as to the most desirable rate of flow and amount of drawdown, with recommended drawdown ranging from less than 10% to as much as 50%.)

This procedure provides data for calculating the drawdown curve, permeability, diffusitivity, and the distance to barriers, as well as the in-place reserves.

The boundaries show up, during this type of testing, much in this fashion:

A stone, dropped in a pool of water, sends out ripples. When the ripples reach the edges of the pool, they reflect back to the point of origin.

Given the speed of the ripples and the time to move out and return, the distance to the edge may be determined.

In testing a well, the pressure drawdown speed acts as the "stone," and flow "ripples" returning from boundaries or barriers are used to calculate the distance to them.

A water drive shows up as a "boundary" in the reservoir.

The testing period varies with the formation characteristics and the well pressure. It can be a few days or more than a year.

The tighter the formation or the lower the pressure, the longer the testing period.

For example, proving up 640 acres in Gulf Coast Miocene sands might be done in three to six days, while running the test for the same area in the Hugoton Field might require more than a year.

Given certain prerequisites, the test is relatively uncomplicated and the flow volume comparatively small. The test also upgrades deliverability forecasts.

Provided the well is clean and the proper technique is followed, those who have used the procedure do not consider it difficult.

Because the testing is done on transient flow, they say that transmissibility (resistance to flow) and boundary location factors turned up by the procedure make deliverability forecasting more accurate.

Park J. Jones and J. E. Cornett, Houston consultants with considerable experience in the technique, have found that the average test uses about 13-million cu. ft. of gas.

They also note that the average test has proved up some 18-billion cu. ft. of reserves.

They figure that a three- to four-day test can prove up as much as 100-billion cu. ft.

The method has been used to calculate both gas and oil reserves, chiefly in the Gulf Coast region.

Jones and Cornett recently compiled results on 19 tests—10 on the Texas Gulf Coast; 5 on the Louisiana Gulf Coast; 3 offshore; and 1 in California.

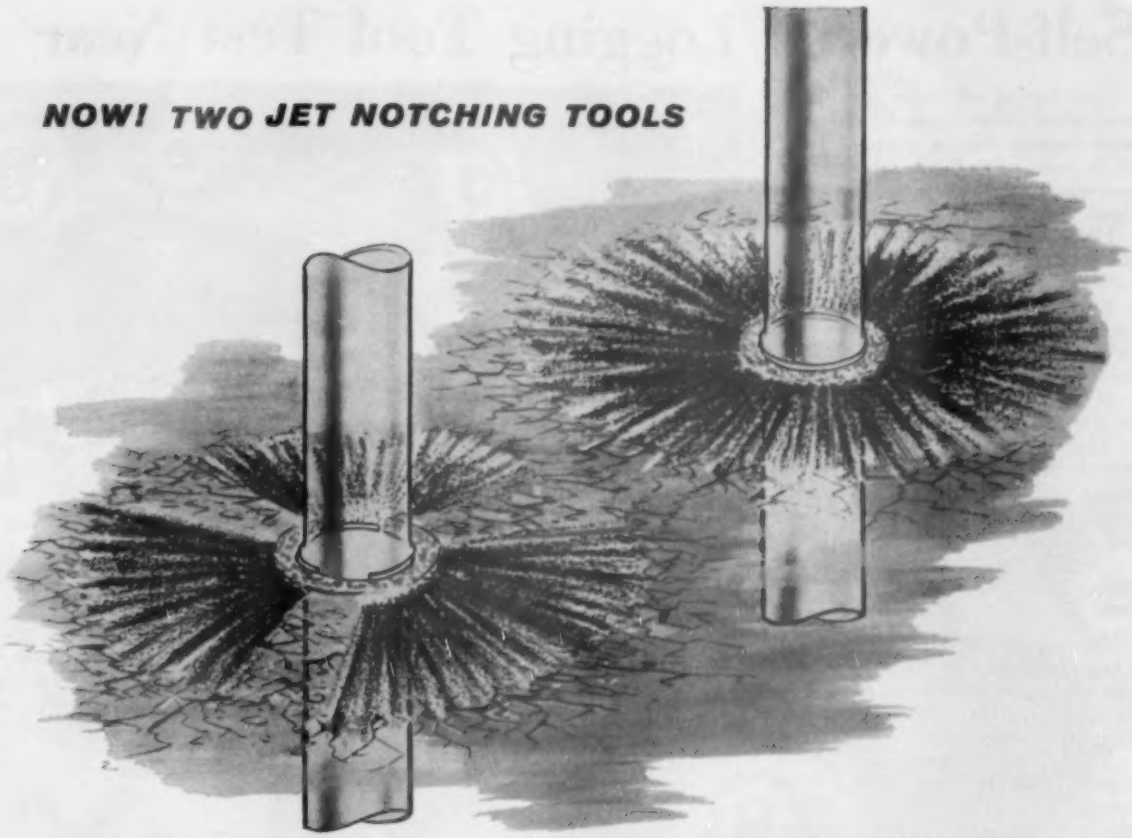
Combined, the tests proved up 253.7-billion cu. ft. of gas in place (averaging 18.1-billion each), and 1.8-million bbl. of oil in place (averaging 458,000 bbl.).

In some tests, no boundaries were reached, so the calculated reserves represented minimum figures.

In some cases, all productive limits for the well were reached.

- **FPC officials concede that a stricter approach on pipeline estimates of natural gas reserves and deliverability is in the making.**
- **The staff, however, stops short of endorsing the "reservoir limit test" method as a means of establishing this data. Officials say the technique would be "impracticable" for commission purposes, although it might be useful to producers.**
- **They say that the pressure decline method will be required whenever it is practical to use.**

NOW! TWO JET NOTCHING TOOLS



McCULLOUGH FRAC-NOTCH CUTTER AND NEW TRIPLE FRAC-NOTCH CUTTER

McCullough's new Triple Frac-Notch Cutter, companion tool to the widely used Frac-Notch Cutter, is gaining extra production for operators wherever hydraulic fracturing is required for well completion or stimulation.

Where the Frac-Notch Cutter produces a full circle, horizontal notch around the well bore, the new Triple Frac-Notch Cutter makes three separate notch cuts simultaneously at the same depth in the well, on a single run. Each notch cuts through casing and cement and cuts and fractures as much as 15" into the formation. *A segment of uncut casing is left between each notch.* When hydraulic pressure is applied the formation is fractured between each notch, giving the effect of full-circle fracturing.

The McCullough notching process is the most effective of all single-point entry methods of fracture initiation. The enormous power of the cutting process notches into the formation and also fractures the formation for some distance beyond the face of the actual cut. Thus, lower hydraulic fracturing pressure is required for initial breakdown, a greater area of formation is more effectively fractured and the flow capacity of the treated formation is greatly increased.

Check with your nearest McCullough Service Location! This process can gain you substantial production increases.

Sizes available for: 4½", 4¾", 5", 5½", 5¾", 6¾" and 7" OD casing. (The Frac-Notch Cutter is also available for 2", 2½", 3" and 3½" tubing.)

UP TO 100 TIMES MORE EFFECTIVE FRACTURING POWER

CAN IMPROVE PRODUCTION AS MUCH AS 30 TIMES

REQUIRES LESS RIG TIME

ACCURATE PLACEMENT OF NOTCH

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Self-Powered Logging Tool Test Near

Field testing will begin soon for a completely transistorized, self-powered logging device containing all of its instrumentation—including the recording strip—within its downhole case.

Designed to operate on a wireline, the recorder contains special mercury batteries with a life of seven hours.

Equipped with a "boot" above it, the unit can be attached to sand lines or any other type of wireline and lowered into the hole.

It requires no other power source or any electrical conductor cable.

The recorder has been laboratory tested successfully for temperature limits ranging between 40F and 350F and for pressures up to 10,000 psi.

Within the next few weeks, the device will be given extensive field tests.

Developed by Electro-Technical Labs Division of Mandrel Industries, the recorder is considered particularly applicable for open hole progress logging of wildcats.

"The DR-11 recorder will have a lot of utility in progress logging of wildcat holes," said W. H. Flynn, manager of Electro-Technical's oil instrumentation division.

"It is not as sophisticated as conventional types of logging devices. The average oilfield hand can run the log, unlatch the case, and remove the visual record for site or office perusal."

At present, the unit is operable with sonic and potential circuits and will be available, later, for conventional electric and gamma ray logging.

For sonic (continuous velocity or CVL) logging, the DR-11 is coupled with a CVP-11 unit that also is transistorized and powered by special mercury batteries with a life of some 12 hours.

The CVP-11 is 228 in. long with a 2¼-in. diameter and weighs 125 lb.

The circuits are self-calibrating and the potential curve is automatically based.

A conventional electric logging unit will be available soon, according to Electro-Technical, and the company also will provide a gamma ray unit in the near future.

The unit's servotype mechanism is one of its more remarkable features. Another is the special chronometer electric clock that automatically starts and stops the recorder.

The "reference" for the unit is its battery. When the unit receives a signal, it compares this with the reference, then moves the recording motor and pin on its output device an amount exactly equal to the input signal.

The movement, thus, is a direct function of the difference between the input and reference voltages.

"The servo mechanism is the most elite electronic servant put at the service of engineers during the past few years," commented Harlo Nelsen, development engineer in charge of the device.

"It is difficult to design and build but is highly accurate when finished."

Because of the automatic basing of the potential circuit and the self-calibrating mechanism, the unit automatically adjusts itself for optimum logging conditions once it reaches the proper logging interval, Nelsen explained.

The unit contains a special chronometer electric clock—originally developed for missiles—which is extremely accurate.

"At any manually set time, up to four hours, the clock turns the instrument on and the recorder automatically calibrates and adjusts itself, then begins running the log," Nelsen said.

"It can log up to three hours at a rate of up to 100 ft. per minute."

If desired, the unit will be equipped with a sheave-driven, time/depth converter/recorder attached to the wireline at the surface.

This device will convert time to depth, providing a depth vs. time reading.

Since the unit provides a log vs. time reading, the two can be correlated to produce a log vs. depth record.

The log is recorded on a special mylar-type recording strip that has been coated on both sides for printing purposes.

STRIP CHART log is contained in body of downhole, transistorized recorder device.

At least three other applications are foreseen by Electro-Technical for the unit—logging during workovers, through drill pipe during drilling, and in coreholes during seismic operations.

"While we feel that the most extensive application of the unit is progress logging of wildcat wells, we think there are other promising uses," said Flynn.

"It can be utilized, for example, during remedial or workover work on wells when used with a gamma ray device to log through pipe.

"By the same token, it could conceivably be used for logging through drill pipe during the actual drilling operation—that is, down to the top of the bit.

"The present diameter of the unit, however, probably would not make it feasible for logging through 4½-in. or smaller drill pipe.

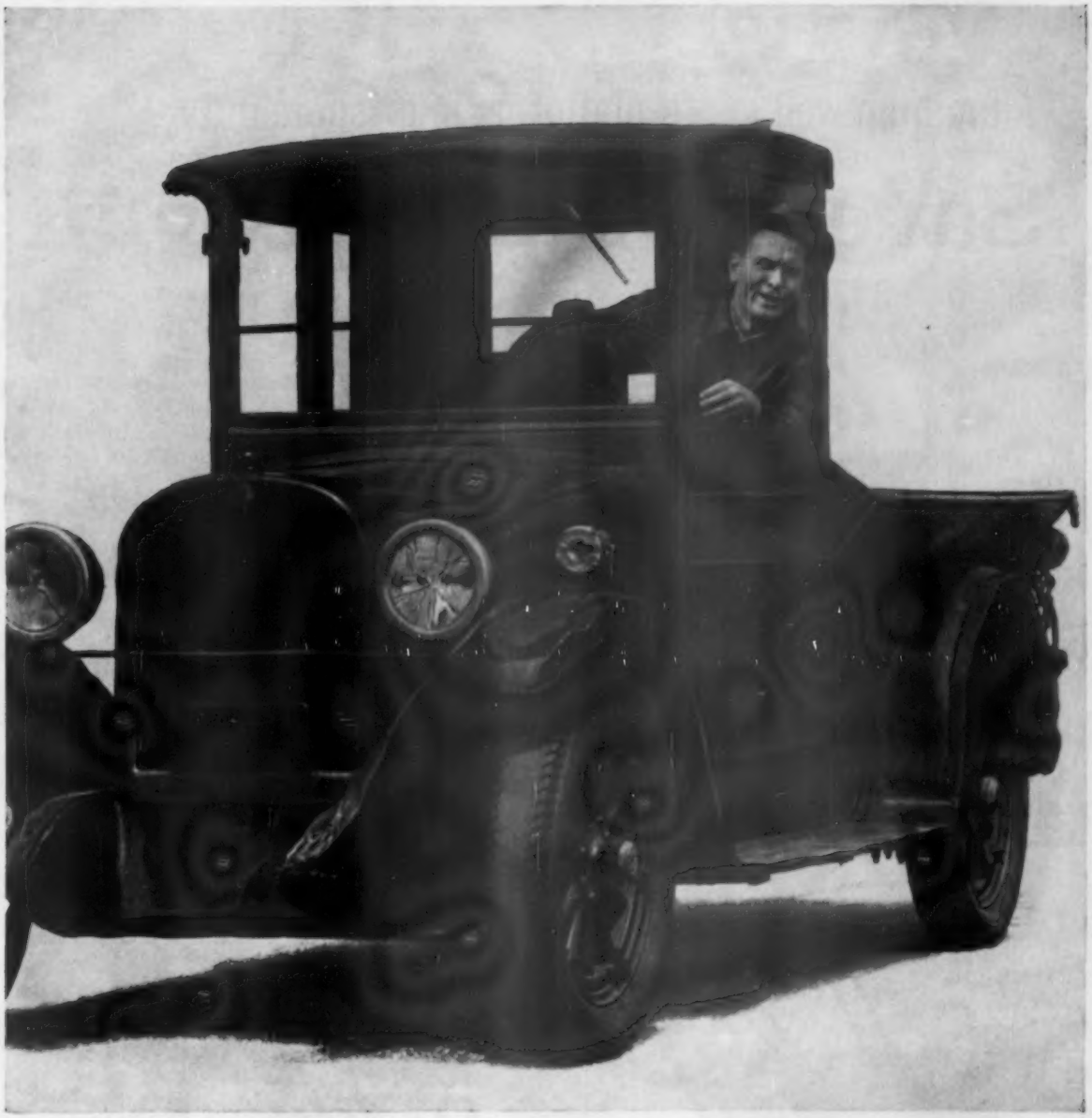
"The unit also could be used during seismic exploration operations. It could log core holes and the results correlated with seismic shooting results."

Electro-Technical will manufacture the unit for sale or rent—it will not offer a logging service.

Flynn said the firm hasn't yet finalized sale or rental prices, or settled on its method of distributing the instrument.

Some of Electro-Technical's plans, of course, depend upon the outcome of the field tests of the prototype model.

But the device will be highly flexible, according to Flynn, needing no truck or special surface equipment on location.



"I need a fluid-loss additive like I need a new truck!"

You can bet on it, Charlie!

The fact is, fracture extension calculations by service companies usually indicate the need for a fluid-loss additive. And none gets more mileage than ADOMITE-MARK II!

This isn't just talk, Charlie. In over 25,000 fracturing treatments ADOMITE has done a cracking good job.

Larger fractures. Faster payouts. Greater long-run economy. That's the ADOMITE record.

You get larger fractures per volume of fracturing fluid . . . or same-size fractures with less fluid volume . . . with ADOMITE. That's why among operators who use a fluid-loss additive, eighty per cent choose ADOMITE!

Ready for a trade-in, Charlie?

For more information, contact your service company or these ADOMITE men!

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J. M. Foster, Wichita Falls, Texas, Phone 723-8181
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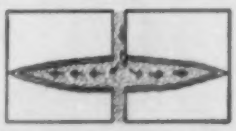
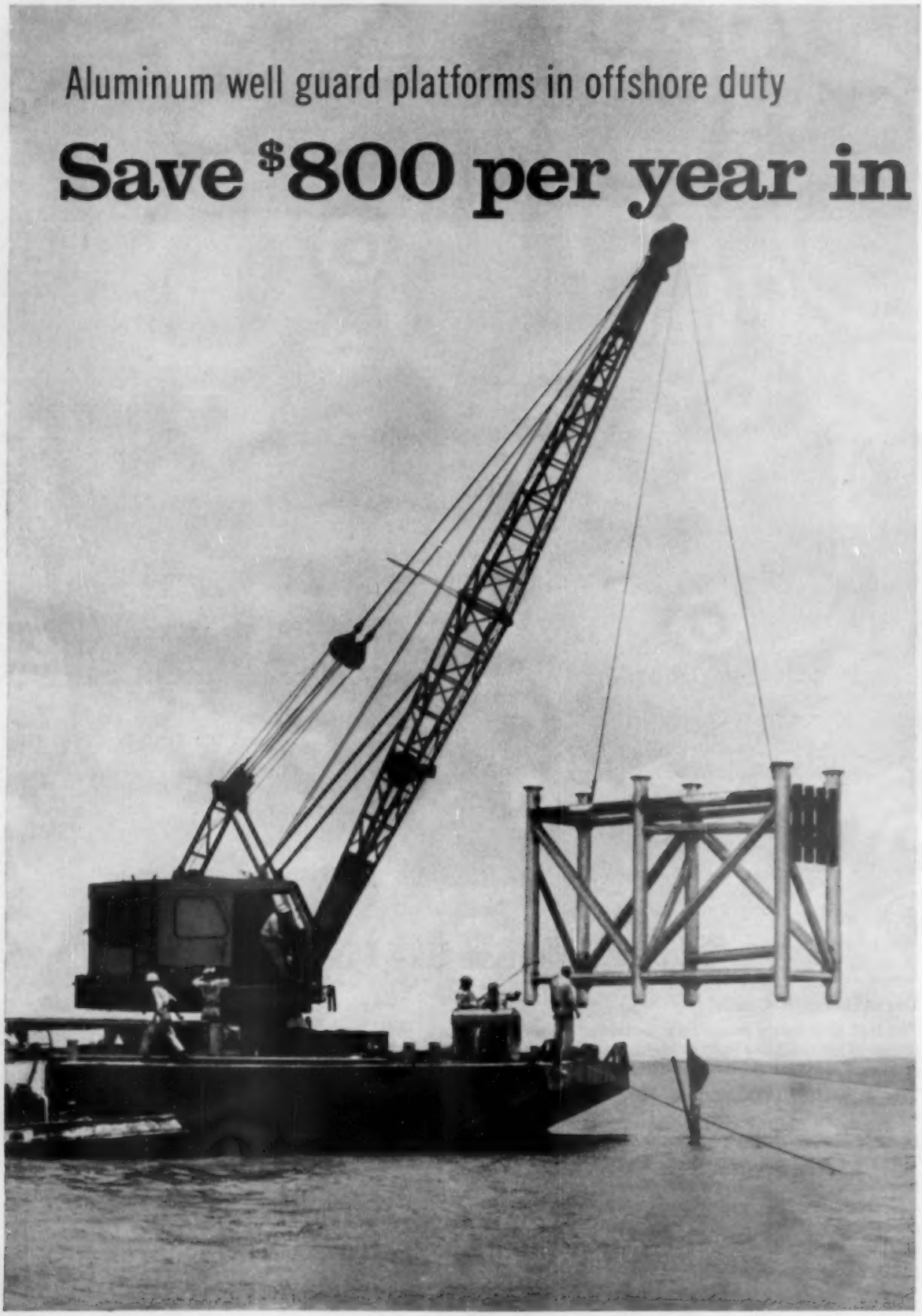


"25,000 frac jobs can't be wrong!"

Aluminum well guard platforms in offshore duty

Save $800 per year in



upkeep, cost 10% less

A major oil producer has just installed the first offshore aluminum well guard off the southern tip of Padre Island, Texas. These guards are used in shallow offshore production to protect the well head. In addition to providing excellent corrosion-protection, the aluminum well guard platforms offer substantial cost reductions:

The aluminum platform actually costs 10% less initially than a steel one. Reason—for corrosion protection, steel platforms require a taped coating that averages about $1200 per structure.

Steel platforms require quarterly maintenance inspection—costing $400 per year—not necessary with aluminum.

Steel platforms require new coatings—approximately every three years. Aluminum platforms will never need protective maintenance—estimated yearly savings: $400.

Total yearly savings in maintenance—$800.

In addition to these important savings, aluminum provides other advantages. It is lightweight and easy to fabricate. This means that the well guard unit could be prefabricated on shore, and easily transported and installed. Aluminum's non-sparking property is another advantage.

Reynolds engineers worked very closely with Brown & Root, Inc. in the design and fabrication of this unit. Standard 10" diameter schedule 10 aluminum pipe was used for the legs, and 6" diameter schedule 40, for the bracing members. Aluminum grating serves as the platform deck.

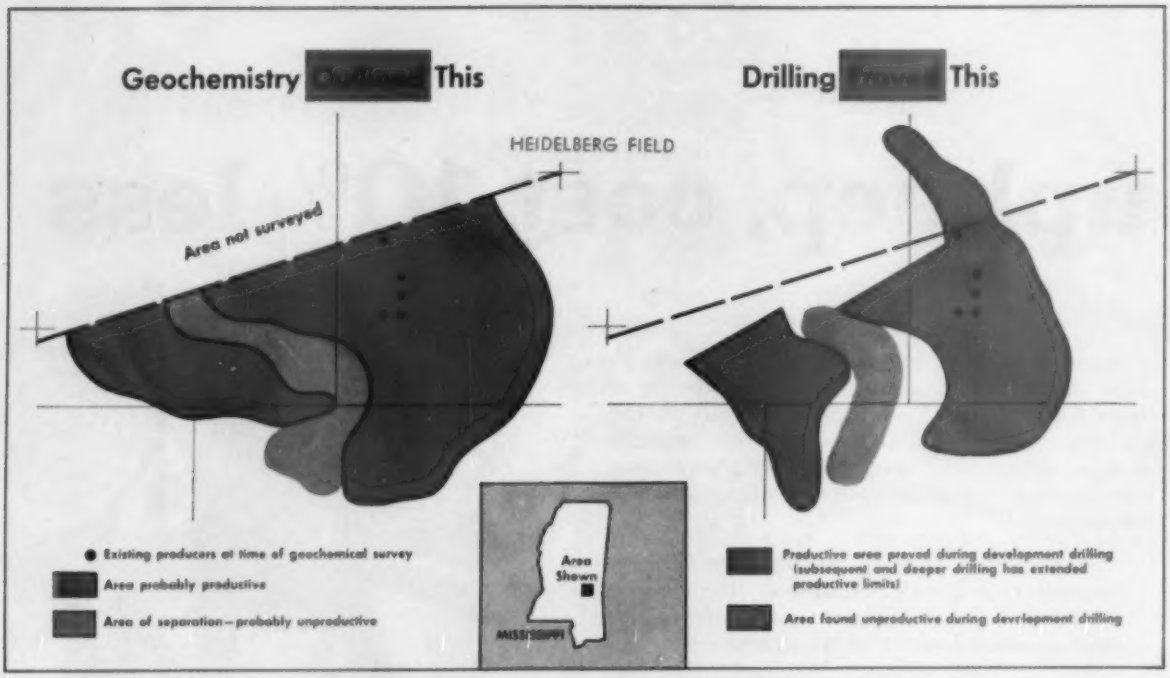
Actual installation involves placing of the aluminum well guard unit over the completed well and then driving steel piles through the tubular aluminum legs. Concrete grouting is poured between the steel and aluminum legs to prevent galvanic corrosion.

Workmen guiding steel pipe through aluminum leg that will protect and prolong the life of the steel. Standard 10" schedule 10 aluminum pipe was used for the legs. Cement grouting separates the aluminum pipe and the steel pipe.

Initial material cost doesn't fully determine final cost. Aluminum's light weight, ease of fabrication, and corrosion resistance often mean lower final costs. For information on how aluminum can help you cut costs, contact the leader in developing aluminum applications for the oil industry—Reynolds. Call the Reynolds office nearest you or write Reynolds Metals Company, P.O. Box 2346-CP, Richmond 18, Virginia.

REYNOLDS ALUMINUM

Watch Reynolds new TV show "Harrigan & Son", Fridays; also "All-Star Golf", Saturdays—ABC-TV.


Geochemistry Outlines This
Drilling Proves This
HEIDELBERG FIELD
Area not surveyed
Existing producers at time of geochemical survey
Area probably productive
Area of separation—probably unproductive
Area Shown
MISSISSIPPI
Productive area proved during development drilling (subsequent and deeper drilling has extended productive limits)
Area found unproductive during development drilling

Geochemistry to Get Full-Fledged Test

A new firm, Davidson Geochemical Oil Co., formed to conduct petroleum exploration and development primarily on the basis of geochemistry, will begin operations soon on the Upper Texas Gulf Coast.

Based in Houston, the company is backed predominantly by local individuals, several of whom are engaged actively in the oil business.

"Our purpose is to develop exploratory drilling programs based primarily on geochemical methods," explained Martin J. Davidson, formerly assistant manager of exploration for Crown Central Petroleum Corp. and the moving force in the new company.

"We'll be seeking leases and farmouts. We will do detailed geochemical surveys on prospects and will augment those findings with the more conventional exploration techniques. But the emphasis will be on geochemistry."

Davidson said the company hopes to kick off its program by drilling one or two wells "before the end of the year."

The company has been organized on a foundation of accumulated geochemical reconnaissance data gathered during the past 18 years by Dr. Leo Horvitz of Horvitz Research Labs, Houston.

Initial activity will involve 850,000 acres on which are located some 85 geochemical anomalies.

Most of Horvitz' geochemical analysis work has been done for clients. However, he has also done an extensive amount of geochemical reconnaissance for his own account. Davidson Geochemical has purchased the results of this work.

The new firm will start its operations by investigating and testing anomalies already indicated by these surveys.

"Of the 85 prospects, 48 can be classed in our terminology as 'near prospects,' requiring only three weeks each for geochemical detailing," Davidson said. "In addition, there are 37 that could be termed 'leads,' requiring about six weeks for detailing.

"They probably will turn out to be low relief structures and stratigraphic traps because they have not shown up on seismic pictures.

"Some will be stepouts or extensions from known fields, others will be in the rank wildcat class."

The hope is that some of these anomalies will result in the discovery of major fields.

Davidson is an unabashed, outspoken advocate of geochemistry as an oil-finding tool:

"It's time to take geochemistry out of the laboratory and put it in the field to find oil more cheaply. I want to see it used as it should be, and I'd like to see us less dependent in this country on foreign oil.

"I don't believe that every one of those anomalies will yield a major oil field, but I think some of them will."

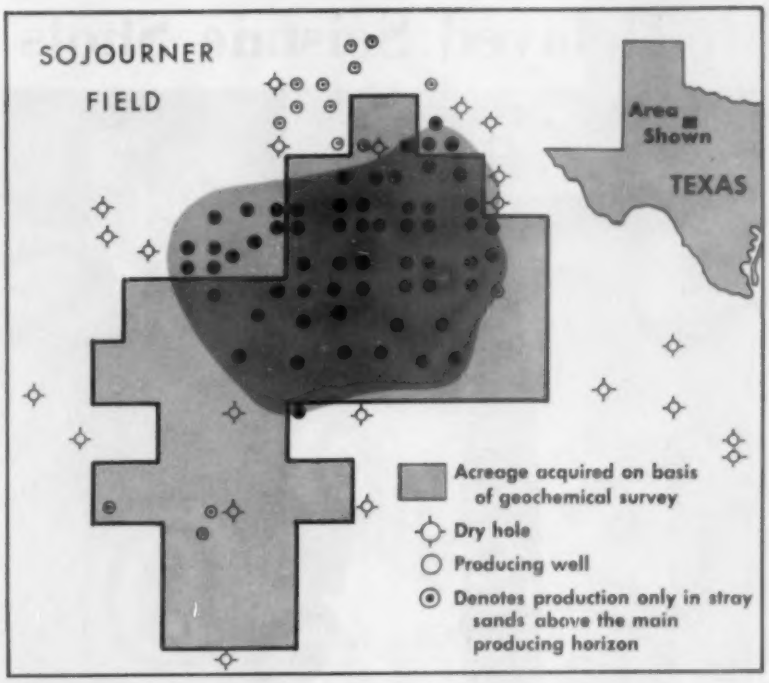
The company's formation underscores the continuing interest—though not necessarily the complete acceptance—within the industry of geochemical exploration methods.

At least a half-dozen oil companies, and a number of allied participants, are using or investigating the technique.

There have been a number of isolated developments involving geochemistry since the flare-up of interest in the technique almost two years ago (PW—Jan.23'59,p25). But there have been no significant breakthroughs, and the issue of the method's true values remains unresolved.

Just about a year ago, the Organic Geochemistry Group of the Geochemical Society was formed to "encourage and foster studies on the origin, nature, geochemical significance, and behavior during diagenesis of naturally occurring organic substances that relate to their geological occurrence and history."

In a recent report, the group listed these companies as conducting "active research projects" within the petroleum field: Esso Research & Engineering Co., Gulf Research & Development Co., Ohio Oil Co., Pan American Petroleum Corp., Pure Oil Co., and Shell Development Co. Similar research was under way at the California



as Exploration Technique

Research Corp., the University of Oklahoma, and Petroleum Research Corp.

It is known, in addition, that Sinclair Oil & Gas Co. has an active project under way and that Geophysical Services Inc. is offering a contract service on geochemical exploration. Horvitz, of course, has been conducting surveys and analysis for clients for many years. Geochemical Surveys conducts its work primarily for itself or as a participant with others.

Some of the projects, however, are fundamental in character and may not be related directly to practical application of geochemistry as an exploration tool.

Geochemistry's advocates point to a number of claimed successes for the technique, although the industry generally doesn't credit geochemical analysis for these discoveries.

Davidson, for example, summons statistics to show that, of 109 geochemical anomalies found by Horvitz on 3,324,000 acres—situated in nine U.S. and two foreign areas—39 were drilled, locating 23 productive wildcats and 16 dry wildcats, for a success ratio of 59%.

For the Texas Gulf Coast, he adds, of some 45 anomalies found on 1,018,000 acres, 20 were drilled, yielding 13 productive and seven dry wildcats, for a 65% success ratio.

In North Texas, the record was eight anomalies found on 201,000 acres, with four of them drilled for three productive wildcats and one dry, or a success percentage of 75%.

These wells were not drilled, necessarily, on the basis of geochemical information. In fact, most of them were drilled as a result of more conventional data and, in some, the operator may not have known that a geochemical anomaly existed at the location.

Among the more striking specific examples cited for geochemistry are the Sojourner pool, Haskell County, Tex., and the Heidelberg pool, Jasper County, Miss.

A lease block was assembled by Crown Central Petroleum Co. in the Sojourner area on the basis of a geochemical anomaly found in 1945 by Geochemical Surveys.

Following detailing by seismic methods, the prospect was drilled some two years later, resulting in discovery of the Sojourner stratigraphic trap pool producing from a new horizon in the area, the Strawn series of Pennsylvanian age. The most productive area of the pool has been found to lie within the outlines of the original geochemical anomaly (map).

In 1944, Horvitz Labs conducted a geochemical survey for Gulf Oil Corp. of the Heidelberg pool area. Gulf had completed a discovery well and wanted to get some idea of the prospective productive area.

As a result of the survey, showing the extent of the prospect, Gulf leased a wide area and proceeded to develop the pool. Drilling confirmed the outlines of the original geochemical anomaly. However, two additional significant findings showed up in this geochemical survey.

The analysis indicated that the area comprised a large pool with some separation between the two main producing areas. This separation later turned out to be a barren graben that has been tested thoroughly with dry holes (map).

Secondly, the survey indicated that the area along the western edge of the graben would be productive. Shallow wells proved dry. But more recent deeper drilling has resulted in producers in that vicinity.

Meanwhile, in the USSR, the attitude toward geochemistry seems to be much more favorable than in the U.S. The evidence available indicates that Russian oil hunters are using geochemical methods effectively.

A Russian textbook, "Geochemical Methods of Prospecting and Exploration for Petroleum and Natural Gas," has recently become available in an English translation by Paul A. Witherspoon, professor of petroleum engineering, University of California, Berkeley, and William D. Romey, graduate research engineer.

The book deals with a large number of techniques and approaches involving geochemistry in general. But on the matter of "gas surveys"—the detection near the earth's surface of hydrocarbon gaseous indications originating from petroleum deposits in the depths of the earth—the book says unequivocally:

"The gas survey is the most important and widespread geochemical method of prospecting for oil and gas. It is a direct method because it detects migrating hydrocarbon gases that are directly associated with an oil or gas pool."

The Russians said there are some limitations and that the method "can be perfected much further and is in need of serious investigations of a theoretical character." But they pointed out:

"The gas survey has become firmly established in the general complex of oil prospecting work. In the majority of cases a gas survey is conducted after geological and geophysical surveys in order to evaluate the likelihood of finding oil under structures determined thereby."

The original book was published in the Soviet Union in 1954 and might fail to reflect additional progress since then.

Motion Sets Off Delayed Seismic Shots

Deltex Laboratories has developed what reputedly is an automatic and exact method for delayed detonation of seismic charges.

Deltex is the electronics division of Delta Exploration Co., Jackson, Miss.

Starting with the idea of finding some means of sequential shooting by a motion-sensing method, Deltex has come up with a device that uses an inertial switch and a thyratron tube.

The gas-filled tube will take and retain an electrical charge to set off the explosive.

The switch is a copper-coated steel bearing resting on three pins that are connected to the tube.

The steel ball acts as a "shunt" to separate the tube's electrical charge from the explosive until a motion impulse shifts the ball.

Called the "Impulse Blaster," the device uses the down-traveling seismic wave initiated by a conventional master charge to fire "slave" charges loaded into the hole at specific depths.

One or more charges—consisting of Impulse Blaster, cap, primer, and explosive charge—are loaded into the hole and to given depths and held in place by anchors.

There is a two-wire lead from each slave charge to the surface for arming purposes.

After the slave charges are in place, a conventionally fired master charge is loaded into the hole.

Just prior to firing, the arming circuits of the Impulse Blaster are activated electrically, using some 250 volts and requiring about 45 seconds.

The master charge then is set off by any conventional means. The seismic wave generated by this charge travels down hole and is felt and used by each Impulse Blaster in turn to set off its slave charge in sequence.

Deltex points out that the automatic nature of the device eliminates computations and assumptions in sequential firing of charges downhole.

"All ambiguities as to velocities are eliminated," said a company official. "This is exact and automatic, so no computations or assumptions are involved.

"No matter what its velocity is, when the wave strikes the slave charge, the charge will fire.

"So the velocity and the distance between charges are of no consequence."

Reinforcement of the down-traveling wave, putting more energy into the ground, greater signal-to-noise ratio, and fewer necessary shot holes are some of the advantages claimed for the Impulse Blaster.

"Proper placing of the several charges cancels out most of the up-traveling wave, and at the same time, puts more energy into the ground," the Deltex official pointed out.

"Also, the use of smaller charges puts more energy into the ground than if they were all put into one big charge, because not as much of the energy is used up in elastic deformation near the charge."

Deltex said that field results, so far, indicate economics favor the use of the Impulse Blaster array over horizontally spaced pattern shooting or multiple "up the hole" shot methods.

An Impulse Blaster array hole would be deeper, however, than a shot hole drilled for a conventional one-shot charge.

Since the device itself contains no explosives, there are no shipping complications. And Deltex stresses its safety features.

The Impulse Blaster is completely inert until armed. The arming lead and firing plug are shorted at the factory.

TRIGGERED by master charge, the Impulse Blaster sets off slave charges in sequence.

The shunt precludes static build-up of electric charge.

Units can be disarmed by moving an arming switch to "disarm" or by shortening the two wires of the arming leads together.

Deltex also noted that the device can be loaded in a hole "and left for a number of days prior to arming and firing."

Deltex still is gathering field test data on the device, which will be distributed by Hercules Powder Co. under an exclusive arrangement.

More than 1,000 of the units have been manufactured and put into the field on a widely scattered basis.

So far, the device has been used in such areas as the Rockies, South Louisiana, Mississippi, and Texas.

Some of the early field tests have resulted in modifications, but Deltex said the data received has been quite favorable.

In the Rockies, for example, Deltex said tests reportedly have indicated that an impulse blaster array in a single hole provided "equivalent or better data than a three-hole pattern shot, with an over-all saving of 50%."

The company said similar results were obtained elsewhere.

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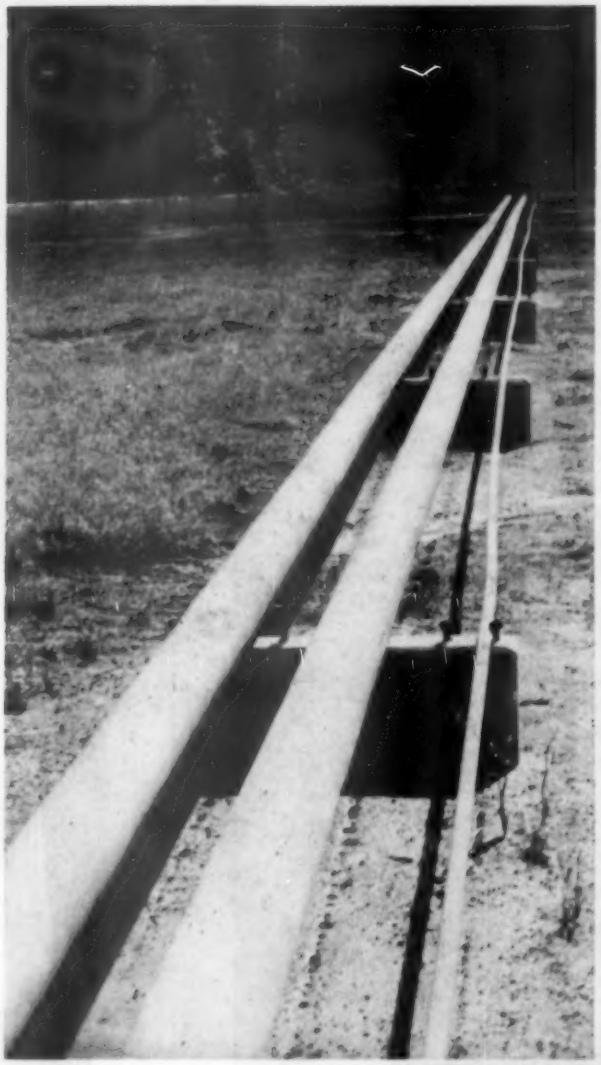

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What's New / IN EXPLORATION, DRILLING, PRODUCTION

Board Considers Impact Of Oil Sands on Markets

The impact on present crude markets of proposed oil production from Alberta's Athabasca oil sands has become an official ruling consideration on proposals to develop the sands.

This factor is seen as a major reason for the setback received by Great Canadian Oil Sands, Ltd., concerning its application to launch a $110-million project to produce and market 31,500 b/d of oil from the sands (PW—Nov.25'60,p12).

The views expressed by the Alberta Oil & Gas Conservation Board with respect to the impact of tar sands production on present markets are, reportedly, essentially the same as those of a special oil-sands study committee whose report was turned over this fall to the provincial cabinet. Premier E. C. Manning is expected to make contents of the committee report public in the near future.

In its deferment of the Great Canadian application, the board said: "The board has determined that it must be concerned with the over-all conservation aspects of the scheme, with the impact of the proposed sale of the synthetic crude from the oil sands on the market for conventionally produced crude, and with the technical and economic feasibility of any operation proposed on a commercial scale . . ."

•

An Arkansas state official says the state's oil industry is well ahead of schedule in its efforts to eliminate water pollution from field waste.

Marvin L. Wood, director of the Arkansas Water Pollution Control Commission, says that if all oil companies in the state complete present plans for salt water disposal, 48% of the state's pollution from oil well sources would be under control by Dec. 31. This would put the state some 10% ahead of its five-year plan —launched in late 1958—to eliminate oil field pollution, Wood reports.

•

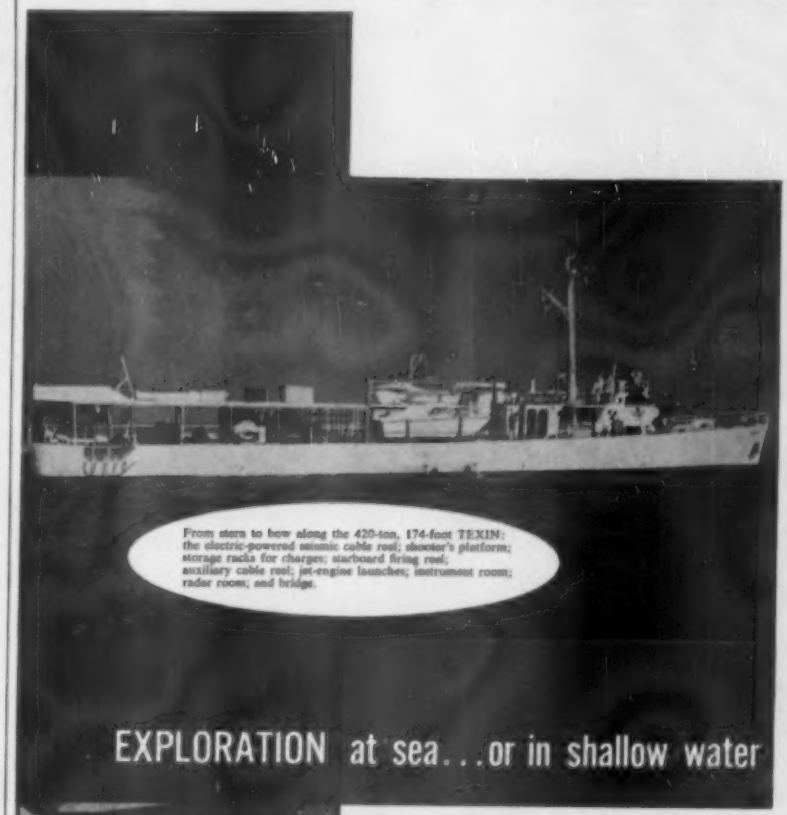
The U.S. Supreme Court has denied a petition to review a Pennsylvania state court decision holding, in effect, that "mineral rights" on property do not include natural gas and oil unless specifically stated.

The action means that Pennsylvania will receive some $2-million in gas royalties held in escrow. In ruling on the question, the state Supreme Court also held that when the commonwealth obtained surface rights to land, it also acquired the natural gas and oil rights.

•

Directors of Canadian Devonian Petroleums, Ltd., have decided to sell the company.

R. A. Cruickshank, general man-


From stern to bow along the 420-ton, 174-foot TEXIN:
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auxiliary cable reel; jet-engine launches; instrument room;
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ager, says bids will be accepted on the basis of sale of outstanding common stock or on appraisal of the asset value of the company.

•

The University of Tulsa on Jan. 1 will start abstracting technical literature and patents covering exploration and production.

Ben G. Henneke, TU president, says, "information abstracts will be selected annually from 500 American, European, Russian, and Japanese sources, including 7,000 to 9,000 articles and 1,500 to 2,000 U.S. and foreign patents."

A bulletin with the abstracts included will be published weekly. In addition, duplicate sets of file cards will be provided for future references.

•

Texstar Petroleum Co. has bought the full working interest in 7,500 acres of gas-productive leases in Marion County, Kan., from Can-Am Petroleum Co. and others.

The acreage is in the East Antelope field. Production is from the Mississippian lime around 2,400 ft.

Price was not disclosed.

•

The export headquarters of the Oil Well Supply Division of U.S. Steel Corp. are being moved from New York City to Dallas.

M. F. Hazel, Oil Well vice-president, says the move will provide maximum customer service to all regions, since many drilling contractors are headquartered in the Southwest.

•

Franco Central Oil Co. and Franco Western Oil Co. are being merged into McElroy Ranch Co., Ft. Worth. All three are subsidiaries of Franco Wyoming Oil Co.

The merger becomes effective Jan. 1.

Edward J. Brook, president of McElroy Ranch, and L. E. Smith, president of Franco Central, have been elected assistant to the president of Franco Wyoming.

Harry D. Campbell, president of Franco Western, will be vice-president in charge of operations in McElroy Ranch.

•

Texam Oil Corp. has created Suntex Petroleum Ltd. to hold its Canadian properties and manage an anticipated $3-million drilling program scheduled there for next year.

Suntex will take over Texam's interest in 235,000 net acres and production from working interests in Alberta's Joarcam, Gilby, and Willesden-Green fields.

Suntex also will take over Texam's 25% working interest in approximately 2,000 acres in the Sundre area.

•

Canadian Husky Oil, Ltd., and Calgary & Edmonton Corp., Ltd., jointly paid $41,731 for a 25,920-acre oil and gas reservation in northwest Alberta.

The two companies were the only buyers at the Nov. 22 sale.

In the Nov. 17 sale, some 67,000 acres sold for $19,106. Of that, British American Oil Co., Ltd., and Hudson's Bay Oil & Gas Co., Ltd., jointly paid $17,610 for 35,200 acres in far northwest Alberta.

•

Smith Tool Co. has changed its corporate name to Smith Industries International, Inc.

Donald E. Graham, company president, says the name change, which will become effective upon stockholder approval, is being made to describe more accurately the broadened activities of the company.

The company is being formed, he says, as a broad-based parent company to administer the diverse product divisions now operating and those that may be added later. Smith Tool Co. will continue as a division of Smith Industries.

•

Drilling Highlights

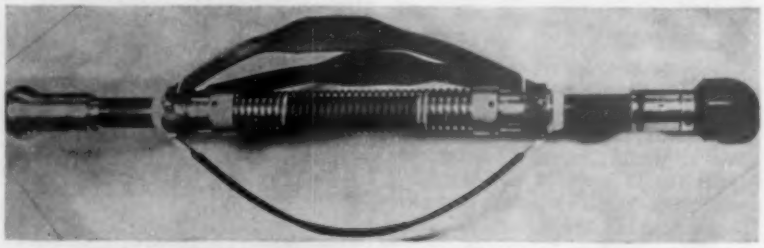
North Texas—W. A. Lofton No. 1 Viola Hunt, section 80, TE&L survey, Young County, was completed for 384 b/d of 42-gravity oil through 8/64-in. choke and perforations at 5,068-72 ft. in the Mississippian. The wildcat is 2 mi. northwest of the depleted North Swink field.

Nebraska—Sunray Mid-Continent Oil Co. No. 1 Ralph E. Stroup, section 8-2n-37w, Dundy County, was completed on pump for 203 b/d of 31-gravity oil through perforations at 4,138-48 ft. and 4,272-309 ft. in the Lansing-Kansas City lime. The wildcat is 8 mi. north of Jones (Pennsylvanian) pool.

West Texas—Humble Oil & Refining Co. No. 1-BS State University, section 29, block 12, University Lands survey, Andrews County, was completed for 255 b/d of 42-gravity oil through 7/16-choke and perforations at 10,075-90 ft. in the Ellenburger. The well is 1½ mi. southwest of East Block 12 field.

In Pecos County, Shell Oil Co. and Humble Oil & Refining Co. No. 1 Blackstone-Slaughter, section 19, block A2, TC survey, was completed for 5.6-million cf/d of gas on open flow through perforations at 8,190-310 ft. in the Pennsylvanian detrital, making it a triple completion. The wildcat, 11 mi. southeast of Sheffield field, earlier was completed for 12-million cf/d of gas open flow through perforations at 9,993-10,012 ft. in the Connell and for 16.5-million cf/d of gas open flow through perforations at 10,050-60 ft. and 10,082-92 ft. in the Ellenburger.

Alberta—British American Oil Co., Ltd., No. 2-34 Vincent Lake, lsd 2-34-58-10w5, was completed for 6.1-million cf/d of gas on open flow through perforations at 1,574-79 ft. and 1,582-86 ft. in the Colony sand. The wildcat is 5 mi. northwest of St. Paul (Blairmore) field.



Sonic and Caliper Logs Are Combined

Schlumberger Well Surveying Corp.'s Sonic Log has been combined with a Caliper Log in single, simultaneously recorded operation. The Caliper Log aids in the interpretation of the Sonic Log, the company says. When viewed together with the Sonic or other open hole logs, the Caliper Log helps to identify formations. The simultaneous recording facilitates interpretation.

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LPG Pipeline-Storage System Enlarged

Texas Eastern Transmission Corp. is completing a pipeline link between its Mont Belvieu (Tex.) underground LP-gas storage depot and two Texas City refineries for two-way movement of butane.

The new pipeline connection, which actually includes the facilities of one other company besides its own, will be ready for operation later this month, TET says.

The two companies that will use the line to ship surplus butane to Mont Belvieu during the summer and take delivery of supplies in the winter when consumption rises are American Oil Co. and Plymouth Oil Co.

Construction of underground facilities by oil companies near their refineries for storage of LPG is growing into a major trend.

The main reason for developing underground storage near a refinery is to provide a cache for excess LPG produced during the summer and LPG furnished from other sources, which is needed in the winter months when refinery demand climbs steeply.

Unless it has adequate storage space, a company is forced to sell its surplus LPG during the summer and then buy LPG in the winter when prices are higher.

The most recent such project finished is the 400,000-bbl. cavern of Sun Oil Co. at its Marcus Hook (Pa.) refinery (PW—Nov.18'60,p102).

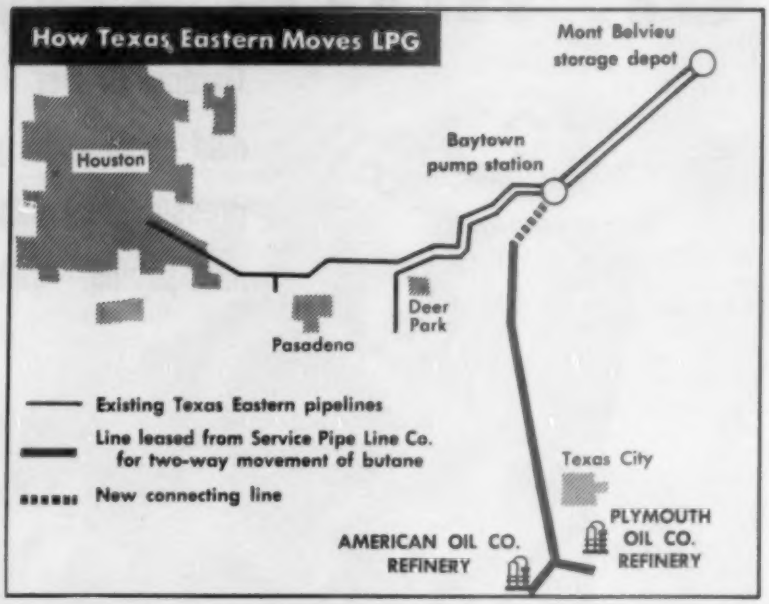
Another that recently went into use is the 500,000-bbl. butane cavern of Shell Oil Co. at its Wood River (Ill.) refinery (PW—Aug.26'60,p34).

In the case of American Oil and Plymouth Oil, they will not only have their own butane on tap a short distance away when it's needed, they will also have a new major supply of butane from Texas Eastern.

To provide the connection, Texas Eastern has entered a long-term agreement with Service Pipe Line Co. to lease its 6-in. line from the refineries to Baytown, just south of Mont Belvieu.

The 30-mi. line, which was recently bought by Service, had been operated by Bayou Pipe Line System, which is owned by Shell Pipe Line Corp.

The line has been used to transport finished products from the Texas City refineries to Baytown for further pipeline distribution. These products will now be carried from Texas City to Baytown in a 10-in. line of Texas Eastern. The 6-in. line is now being cleaned and pressure-tested for butane service.



From a point on the line at Baytown, Texas Eastern is building a short line of 6-in. diameter to its own pump station in the city on its own pipeline to Mont Belvieu.

Texas Eastern has put in service at Mont Belvieu an underground salt well of 550,000-bbl. capacity for storage of butane.

The jug, which was washed out of a salt formation, is one of three now completed at the underground storage terminal (PW—Oct.30'59,p34).

Total storage capacity of the three wells for LPG is over 3-million bbl., according to TET. And capacity of the depot will continue to be expanded.

Texas Eastern says that it has plans to enlarge capacity of the butane jug to about 2-million bbl.

The company adds that it has just completed building a special manifolding system at its Baytown station to handle both butane and propane destined for Mont Belvieu.

Movement of butane through the new connection will be controlled by pumps at Mont Belvieu and at the refineries themselves, depending on the direction of flow.

Texas Eastern is now mapping plans to expand its LPG pipeline and storage services "to other refining and petrochemical centers in the Gulf Coast area," and to other producing regions.

Through interconnections with other lines, TET says, it can now move LPG to refineries along the Texas Gulf Coast and in West Texas, and pick up LPG in both sections.

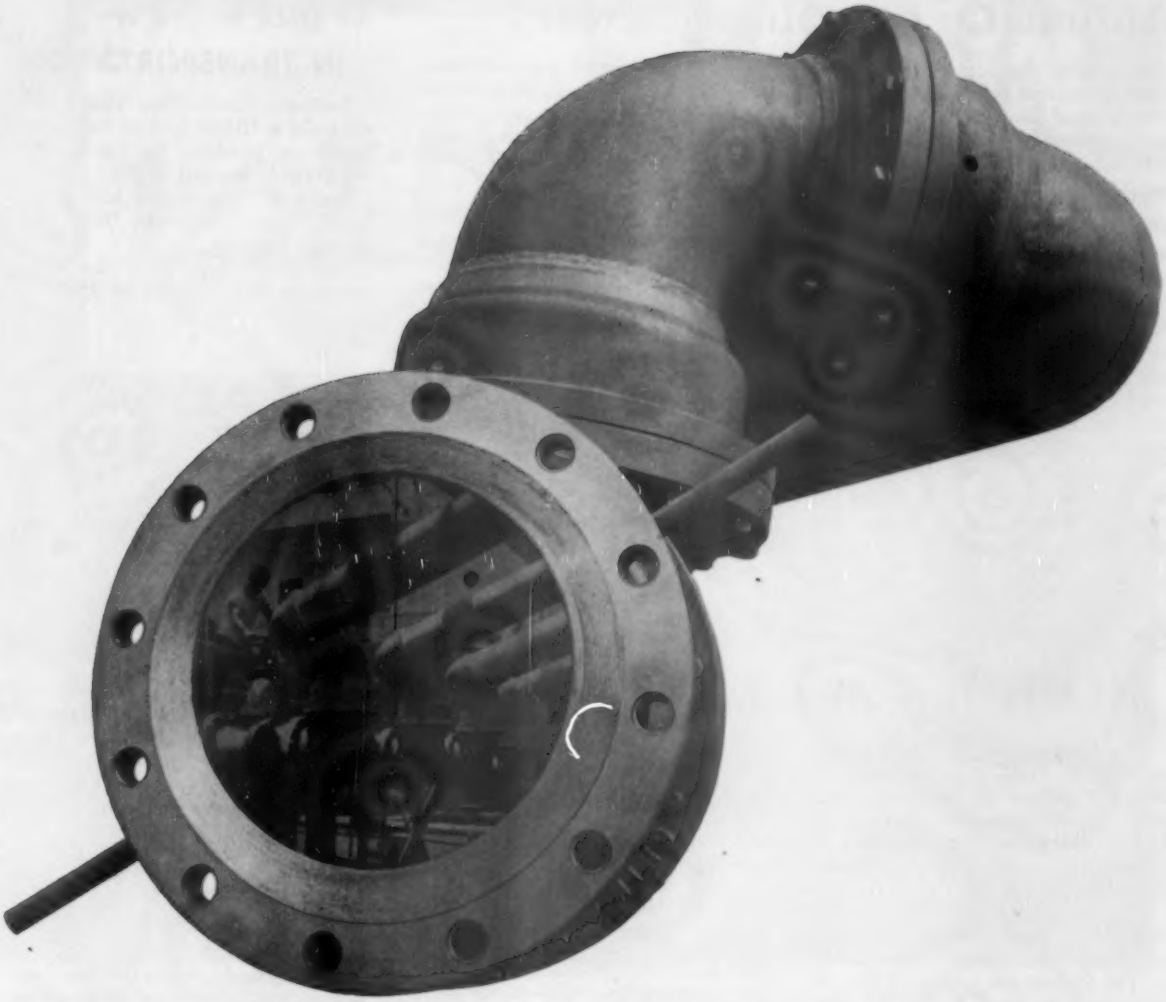
Pipeline-Linked Gas Plants Opened

Two gas processing plants connected by an 88-mi. pipeline were opened in Southwestern Louisiana last week by Union Oil Co. of California and Goliad Corp.

An ingenious feature of the $13-million setup is that one of the plants, located at Cow Island, was built to extract raw liquids from the gas, while the other, situated at Riverside, is a fractionation plant.

The reason for two plants is that it would have been too expensive to transport separated products from Cow Island, which is near the gas production, to Riverside, which is near the Baton Rouge market.

About 500-million cf/d of gas are processed at Cow Island.



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Automatic Gas Storage Near?

Automatic control of the movement of natural gas into and out of underground storage caverns may soon become a reality if an installation now being tested proves successful.

What the new setup does, basically, is to optimize the loading or unloading of a natural gas storage dome.

Mass flow meters continuously measure the amount of gas flowing into or out of storage, and the readings are automatically converted to standard conditions of pressure and temperature. On the basis of these readings, flow valves are automatically positioned for optimum flow.

In addition, moisture meters at the dehydration towers, which are used to treat gas flowing out of storage into distribution, automatically transmit a signal to the control panel at headquarters when a tower is saturated and needs to be regenerated. When this occurs, the operator can switch the flow of gas to one of the other towers.

The test is being conducted at the midwestern storage cavern of a major pipeline company.

Contractor on the project is Union Switch & Signal Co. The remote control apparatus was developed by Minneapolis-Honeywell Regulator Co.

The experiment has not yet reached the stage where it is possible to determine conclusively whether automatic control of a gas storage cavern is feasible, the companies report.

They expect to be ready to announce results of the test some time early next year.

For foreign-flag ships . . .

NLRB Jurisdiction Is Disputed

The Justice Dept. has issued a finding that the National Labor Relations Board lacks jurisdiction over cases now before it involving efforts by U.S. unions to organize crewmen on American-owned foreign-flag tankers and other ships.

The department says its opinion is based on national defense considerations and international law.

The finding was contained in a 30-page brief filed with NLRB in behalf of the State and Defense Depts.

Key issue in the cases is whether NLRB has jurisdiction to authorize elections by the unions among foreign crews.

Unions seeking this action are the Seafarers International Union, National Maritime Union, and International Maritime Workers Union.

In one case, IMWU has charged that National Bulk Carriers, Inc., and its affiliate Universe Tank Ships, Inc., have used "intimidation" to dissuade their crewmen from supporting the union (PW—Apr.8'60,p82).

The companies flatly deny the charge.

The main question, however, as it is in the other cases, is whether NLRB has jurisdiction to rule on disputes involving foreign crews in the first place.

The Justice Dept. asserts "The flag of a ship determines its nationality and the nation with jurisdiction over its internal economy."

Seamen's pay scales of foreign countries generally are considerably lower than that under which union U.S. seamen work. Shipowners say they must register in these countries to operate profitably.

An important factor underlying the finding is that the U.S. considers vessels in Panamanian, Liberian, and Honduran registry—which comprise about 100-million tons—to be under its "effective control."

In its brief, the Justice Dept. quoted Defense Secretary Thomas S. Gates, Jr., as having stated:

"In my considered judgment, the subjection of these foreign-flag vessels to the jurisdiction of the U.S. Labor Management Relations Act would very likely have the effect of driving them to registration under flags of other nations. By reason of the high cost of operations of the U.S.-flag vessels there is, in my judgment, no realistic possibility of such ships being transferred to U.S. registry . . ."

But a union spokesman comments on the Justice Dept.'s opinion, "The Justice Dept. is saying the Administration's effective control system will fall apart if the crewmen get union contracts. This shows the fallacy of the effective-control hoax, which is that we don't have control."

The American Committee for Flags of Necessity, a group comprised of many of the shipowners, says simply, "The memorandum speaks for itself."

What's New
IN TRANSPORTATION

Southern Pacific Pipe Lines, Inc., will build a 10,000 b/d jet-fuel pipeline from Stockton to Castle Air Force Base, Merced, Calif.

Southern Pacific's line from Richmond, Calif., to Fallon, Nev., runs through Stockton.

The new 85-mi., 8-in. line is expected to be completed in April.

•

Rock blasting will start this winter on the right-of-way of the British Columbia section of the 1,400-mi. Canada-U.S. gas pipeline (PW—Oct.14'60,p56).

Price-Poole of Canada, Ltd., contractor for this 107-mi. segment, says one of the biggest blasting jobs is making a cut in 6,500-ft. Moyi Mountain for the 36-in. line.

•

A Standard Oil Co. of California tanker has taken the first shipment of crude from the company's new $5-million terminal at Nikiski, Alaska.

Construction of the terminal on Cook Inlet, north of the Kenai Peninsula, was begun this summer.

If production continues to rise, the company says, a tanker a week will be loaded.

•

The California Public Utilities Commission has ordered an investigation to determine whether use of collapsible containers to haul products meets current truck-safety requirements.

The commission says that "serious questions of safety arise" in use of the collapsible tanks, which aren't covered in present regulations.

Truck operators like the containers because they can be stowed in a small space when empty, thereby permitting hauling a second commodity on the return trip.

•

Paul Blazer, of Ashland Oil & Refining Co., has been made president and chairman of the Board of Directors of the National Waterways Conference—a group formed to promote waterways transport.

Blazer has been an active member of the conference since it was organized earlier this fall to battle proposed user charges for waterways, and to take other action to strengthen waterways business (PW—Nov.18'60, p102).

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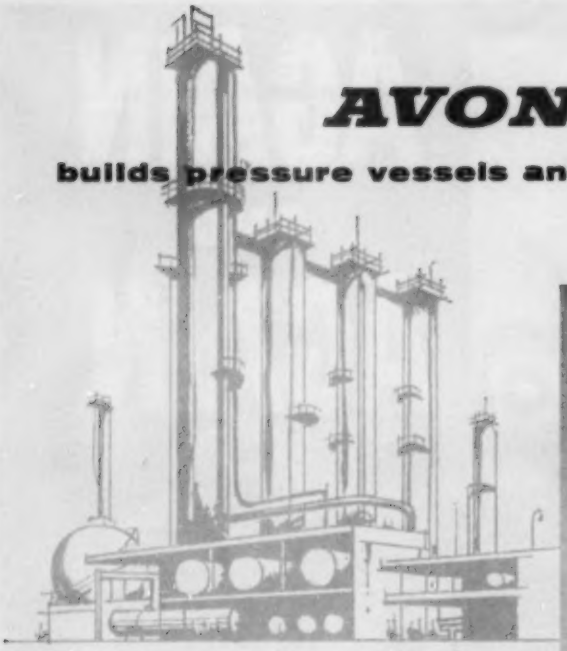
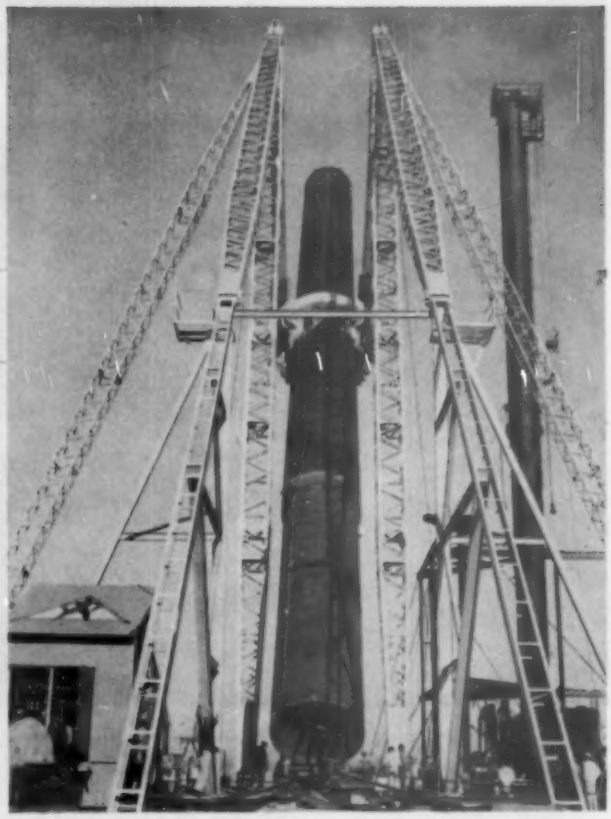


From its strategic location on the Mississippi River Avondale can build and ship pressure vessels and fabricated products of a size and weight to suit almost any job requirement.

Avondale invites your inquiry regarding your particular needs in this specialized field of steel fabrication.



600 ton lift at Main Yard on the Mississippi River

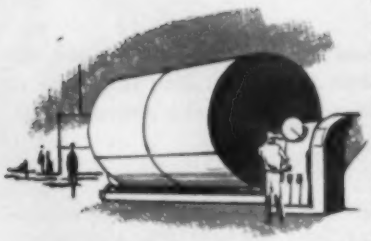
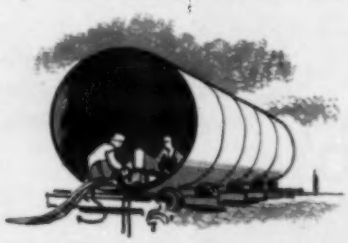
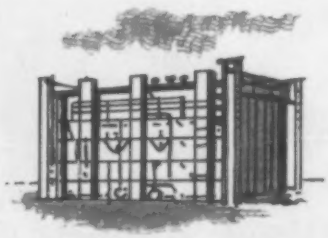


Plate rolls will accept any thickness up to 4½"



Automatic welding of longitudinal seam in pressure vessel



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FLUID CATALYTIC CRACKING data is teletyped from El Segundo to an IBM 7090 computer in the San Francisco office of Standard Oil Co. of California, and computer recommendations are teletyped back to the refinery control room, as . . .

Computer Control Tackles Cat Cracking

Another large refinery unit is being readied for computer control—the fluid catalytic cracker at Standard Oil Co. of California's El Segundo (Calif.) refinery.

Stancal tackled the problem of computer control of its FCC unit in the same way Standard Oil Co. (Ind.) handled the control by electronic computer of its large crude still (PW—Oct.14'60,p38): first, optimization; later, control. And, as an added point of similarity, both units are at present monitored by a computer located many miles away from the refineries.

If the application of computer control to this unit is successful, an extension of the concept to other processing units will involve only questions of economics, rather than technical feasibility, California Standard says.

From the technical point of view, FCC units represent one of the most difficult control and optimization problems in a modern refinery—possibly the most difficult—according to H. W. Crandall, who is in charge of Stancal's computer project.

So far, the FCC system has made several successful trial runs. During these runs, the data from the 40,000 b/d cracker at El Segundo is teletyped every 72 seconds to a computer room in San Francisco, over 450 mi. of leased telephone line.

Some 50 readings of temperatures, flow rates, pressures, liquid levels, and stream composition are automatically converted to electronic signals, and transmitted to the San Francisco office.

In addition, the company says, the operator can feed up to 96 other items of information into the transmission system.

In San Francisco, all this data is transferred to punch cards, ready to be processed by the computer.

Every 15 to 20 minutes, this data is fed to an IBM 7090 computer. From this information, the computer calculates the most efficient setting of every control of the unit, and these results are immediately teletyped back to El Segundo.

The data emerges from the computer in about five minutes, on a new set of punch cards, which are fed to an IBM transceiver. The information is teletyped to the control room of the refinery cat cracker.

Upon receipt of the computer's recommendations, the operators manually make the necessary readjustments.

The output of the computer is actually a set of recommended changes in the control settings, together with data on the calculated results of these moves on the performance of the entire plant. "Stated in another way," Crandall says, "the role of the computer is to calculate the best settings of the controllable variables so that plant performance would be optimized, while at the same time observing all of the plant equipment limitations and safety requirements."

As the unit is one of the largest processing units in the refinery, an improvement of only 1% to 2% in production efficiency would result in an attractive return on the investment for computer facilities, the company says. It would probably result in a one-year payout.

Stancal does not disclose what the actual improvement has been, but says that it is "potentially quite good."

The final step of this development will be the installation, in 1961, of a specially designed computer system, adjacent to the control room of the El Segundo FCC unit.

Naturally the IBM 7090 exceeds by far the computer size required for such a control; a smaller, special-purpose computer, costing about $250,000, is being made ready for the job. It will be on the "open-loop" basis; that is, the computer recommendations will be displayed to the plant operators, who will manually change the existing settings whenever necessary.

Later on, it may be found economically advisable to go to "closed-loop" operation.

The system that is now being designed is such that the control moves may later be accomplished automatically, either electrically or pneumatically.

Actually, it took three years of

work to reach the present stage of optimization.

The development effort involved several departments of California Standard, California Research Corp., and International Business Machines Corp.

The work was first done on a mathematical model of an over-all refinery, including the FCC plant. Thus, mathematical equations were developed and tested: They simulated the behavior of the actual FCC unit in response to changes in such variables as feed rates, feed qualities, and product demand. Then the results of this simulation were tried on "live plant" data.

When the work started, early in 1959, an IBM 704 was used. But a larger, faster, IBM 7090 computer was installed this October, because the company felt that it would speed up the development program.

"This is the largest, most powerful computer system being delivered today by the computer industry," says Crandall. "It is valued at about $4-million, including its supporting complement of hardware. It is fully transistorized, and has up to six times the capabilities of the IBM 704, with computing speeds up to 250,000 per second."

Eventually it is expected that the IBM 7090 will be used to help control all facets of company operations.

It will be used for data processing, oil field operations, distribution systems, manufacturing economics, and market evaluation, says Crandall.

Smaller, special-purpose computers will be used locally, for each type of operation control.

For the Auto and Aircraft Industries: Better "Working Plastics" Are Needed

Plastics could have a much greater share in automobile and aircraft construction, if "working plastics" were developed, having none of the limitations that restrict the use of today's materials.

T. H. Risk, of the engineering and research staff of Ford Motor Co., warned plastics specialists that a "new tack must be taken in plastics development, if their use is to be extended into new areas." Risk was one of the key speakers at the recent regional technical conference of the Society of Plastics Engineers, in Newark, N.J.

About 21 lb. of plastic parts enter into the construction of today's average car, compared with less than 5 lb. in 1940. By 1965, that figure will have reached at least 45 lb. But more could be used for structural parts, Risk said.

Today, eight thermosetting plastics —generally reinforced with any of ten fillers—and over 16 thermoplastic materials, are being used in the automotive industry. The cost of these plastics averages $10 per car (table). They make up about 360 parts, ranging from nylon gears, bushings, fittings, fasteners, and washers, to safety glass laminates, interior trim, and decorative parts.

How Plastic Parts Enter Into the Construction of Today's Average Car

Type of plastic	Number of Parts	Weight of Parts in lb.	Cost of Parts in $
Nylon	207	0.7	0.59
Acrylics	59	1.4	0.72
Polyethylene:			
Low-density	32	0.4	0.11
High-density	3	0.7	0.24
Fluorocarbons and misc.	30	6	2.70
Phenolics	12	3.5	0.66
Vinyl	9	4	0.92
Polyvinyl & butyral	7	2.5	3.22
Acetate & butyrate	5	1.6	0.83

Main reason for the popularity of plastics is economy: Plastics cost more than metals per pound, but they weigh much less. And plastic parts can be finished at a much lower cost than metal parts.

The price of steel has risen 20% in the past five years, and that of aluminum 7½%. During the same period, plastics have decreased in price by an average of 34%.

Today, four of the petrochemical plastics are cheaper than aluminum on a volume basis; they are methacrylate, acrylonitrile-butadiene-styrene (ABS), polyethylene, and polypropylene. The two latter are even cheaper than steel by volume, Risk said.

Furthermore, plastics can be molded to produce attractive as well as functional parts, whereas metals must be assembled, by welding, riveting, or by screwing, to reach an equivalent effect.

Improved physical and mechanical properties must be imparted to plastics, if they are to step up to structural applications.

"We don't need 'superplastics' with ultrasuperior properties and high cost," Risk said. "We need 'working plastics' that have good over-all properties at moderate cost. These materials will bring about the next major increase in the use of plastics in the field of structural materials."

One of the limitations of today's plastics is temperature resistance. Car parts may be exposed to temperatures ranging from —40F to 250F.

Present plastics lose as much as 50% of their strength at temperatures above 100F. Similar limitations occur at low temperatures: Most plastics have a tendency to become very brittle at temperatures around —40F.

Another limitation of present-day plastics is their excessive coefficient of expansion, which is often ten times as high as that of steel, Risk said.

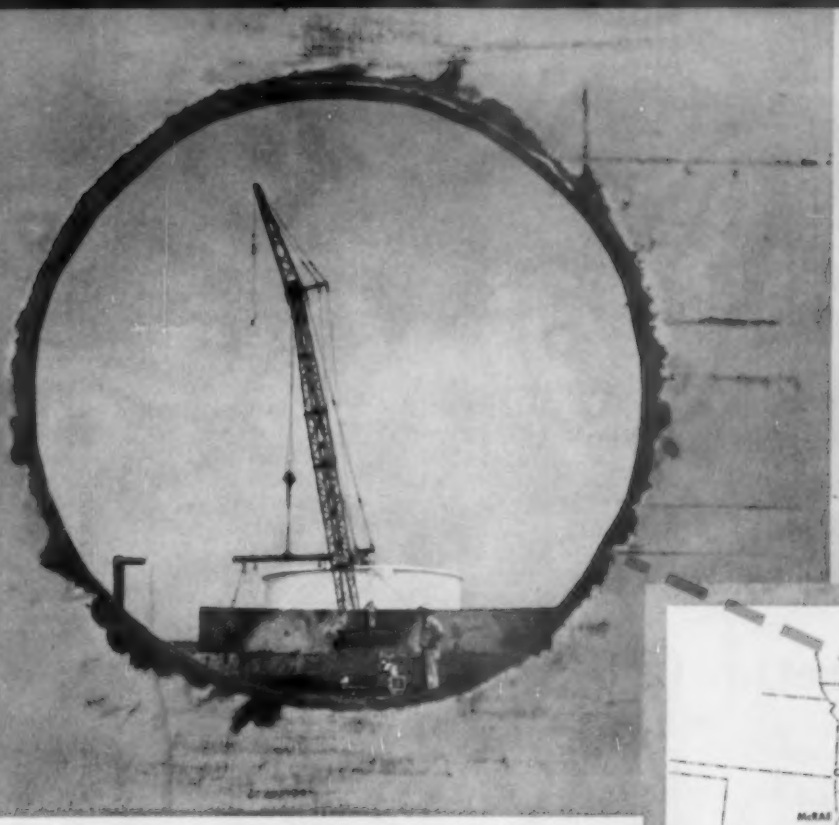
This presents serious joining problems, particularly in large sections, where rigid connection is essential for structural loading.

Plastics with coefficients of expansion approximating that of steel would be a major step towards true "working plastics."

Still another limitation of plastics today is their "stress resistance," which is often inadequate. This lack of structural strength under stress is a particular handicap where localized fastening is employed, and the load distribution is uneven. Thus, polymers with improved strength characteristics are required.

Plastics with better properties, over a wide range of surrounding conditions, would also be welcome in aircraft construction, Robert E. Freyer, engineer of Grumman Aircraft Engineering Corp., told PETROLEUM WEEK.

The main advantage of plastics in aircraft construction, Freyer said, is that they can easily be molded on molds made at relatively low cost in aircraft shops. The high cost of dies needed to form metal parts is justifiable for the volume production of the automobile industry, but it would be exorbitant in aircraft construction,



View of CB&I at work made through manway cutout in gasoline storage tank under construction for Texas Eastern at Seymour, Indiana.

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After 11 years of natural gas transmission service, Texas Eastern's Little Big Inch pipeline is once more delivering refined petroleum products from Beaumont to the Midwest.

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where a comparatively small number of parts are needed for any aircraft model.

Therefore plastics already play an important part in aircraft construction. But a much more substantial volume could be used, and for parts much more functional than under present conditions, if materials with better mechanical resistance were available.

In other fields also plastics would make significant progress if some of their limitations could be overcome.

The switch from metal to plastics could be hastened, for example in the container field, if:

- Polyolefin resins could be made compatible with more products;
- The plastics used in containers were capable of withstanding product processing after packaging—especially in food packaging, where heat is involved.

These factors, Thomas W. Mullen, of Celanese Plastics Co., told the SPE conference, eliminate plastics from a large number of applications, including 51-billion food containers a year, and 1-billion collapsible metal tubes.

"Approximately 95% of the can business," Mullen said, "will remain in metal cans, due to low can costs and the inability of the present plastics to perform the function required."

However, he added, high-density polyethylene containers are now being marketed in Canada, for packaging outboard motor oil, and lube oil is being marketed in the U.S. in a plastic collapsible tube.

What's New

IN PROCESSING

The first Thermofor Continuous Percolation bleaching unit to be used for wax production has been installed at Western Petrochemical Corp.'s Chanute (Kan.) refinery.

The unit provides continuous adsorption bleaching instead of conventional batch bleaching. The complete and uniform decolorization of wax processed with TCP prevents discoloration or yellowing of the end product.

New deasphalting facilities and additional vacuum distillation units have also gone on stream at the refinery, which is operated by Western's Warwick Wax division.

•

Humble Oil & Refining Co. is increasing capacity for paraxylene and orthoxylene production at its Baytown (Tex.) refinery.

Total capacity of the Baytown unit that produces both petrochemicals will be raised to 105-million lb. annually by the first quarter of 1962, an increase of 40-million lb.

The expansion resulted from current high demands for aromatics, the company says, as well as a favorable outlook for these products in the foreseeable future.

•

Minneapolis-Honeywell Regulator Co. will produce commercially the Anotrol electrochemical system for controlling corrosion, developed by Continental Oil Co. The system is based on anodic passivation (PW—Oct.30'59,p30).

Minneapolis-Honeywell has an exclusive world-wide license for manufacturing and marketing Anotrol. Its Rubicon division will offer the system initially, during the first quarter of 1961, for control of corrosion in sulfuric acid storage.

•

Standard Oil Co. of California is putting on the market this month a single-grade heavy-duty motor oil containing an ashless additive. It will be known as RPM Special Motor Oil.

The additive, the company says, contains no alkaline metallic detergent, and forms no combustion deposit on engine parts; therefore surface ignition and ping are minimized.

The oil will be available first in a few selected areas, and its distribution will be extended as rapidly as possible.

Safety Rules Set for LPG Samples

Standard Oil Co. (Ind.) has set up new general rules for the safe sampling of light liquid hydrocarbons, as a result of an accident that occurred earlier this year at its Mandan (N.D.) refinery (PW—May27'60,p41).

In that case, the container, a carbon steel bomb (picture), had been filled with field butane at a temperature of 26F and had been brought to the laboratory, where the temperature was 75F. It ruptured, and the vapor flashed. No one was injured, but the potential danger was extremely serious.

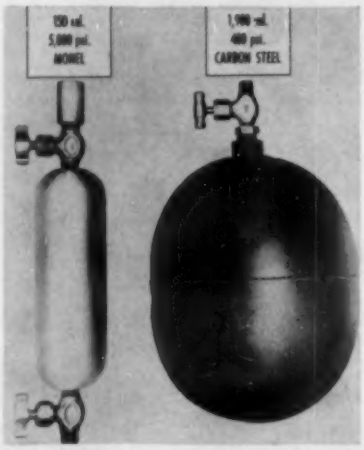
Although the rules are intended to apply only to Indiana Standard's own refineries, the committee that the company appointed to study the subject wrote them as a report to the industry.

The rules apply to all light liquid hydrocarbons having a Reid vapor pressure of 18 psi. or more.

Routine samples should not exceed 150 cc. of nominal capacity, although 300-cc. samples may be handled provided special permission is obtained from an authority designated by the refinery manager. The samples should be taken only with the knowledge of the stillman or operator responsible for the unit, and sampling is to be done only by qualified personnel.

The new rules set standards for the material and design of sampling bombs.

Only monel metal (70% nickel, 30% copper) is to be used, and the containers are to be designed and hydrostatically tested for an operating pressure of 5,000 psi. (picture). They are to be equipped with suitable high-pressure, forged-steel valves. They are



NEW MONEL CONTAINER (left) now replaces the old carbon steel bomb (right) for the sampling of light liquid hydrocarbons at Indiana Standard refineries.

to be tested at 8,000 psi. at least once every five years, and visually inspected at frequent intervals for possible corrosion. The laboratory is responsible for the condition of the containers, especially their leak-proof quality.

After a container is filled, it must be vented to provide at least 20% of vapor space for possible expansion.

This is to avoid excessive pressure rise when the sample expands at the higher temperature of the laboratory.

To avoid overheating, filled containers should be kept out of doors (in the shade) or under refrigeration.

All sample containers must be purged prior to sampling, to avoid producing an explosive mixture.

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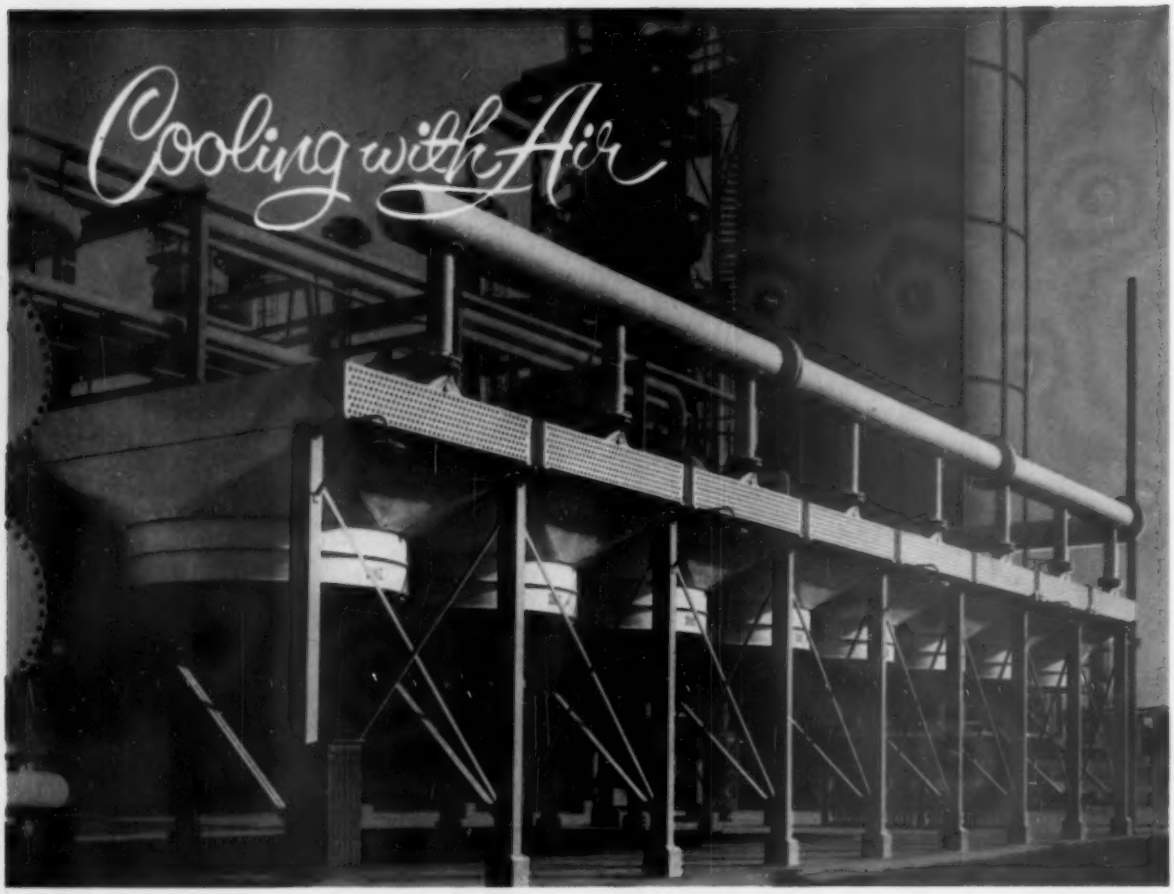

IN THE BAYWAY REFINERY . . .

of the Esso Standard Division of Humble Oil and Refining Company.

The above pictured installation of HUDSON Solo-aire units obviated costly addition to the existent and comparatively high-maintenance-cost water system.

Over-all economic comparisons of HUDSON Solo-aire cooling versus water cooling almost invariably result in selection of Solo-aire units for much or all process cooling.

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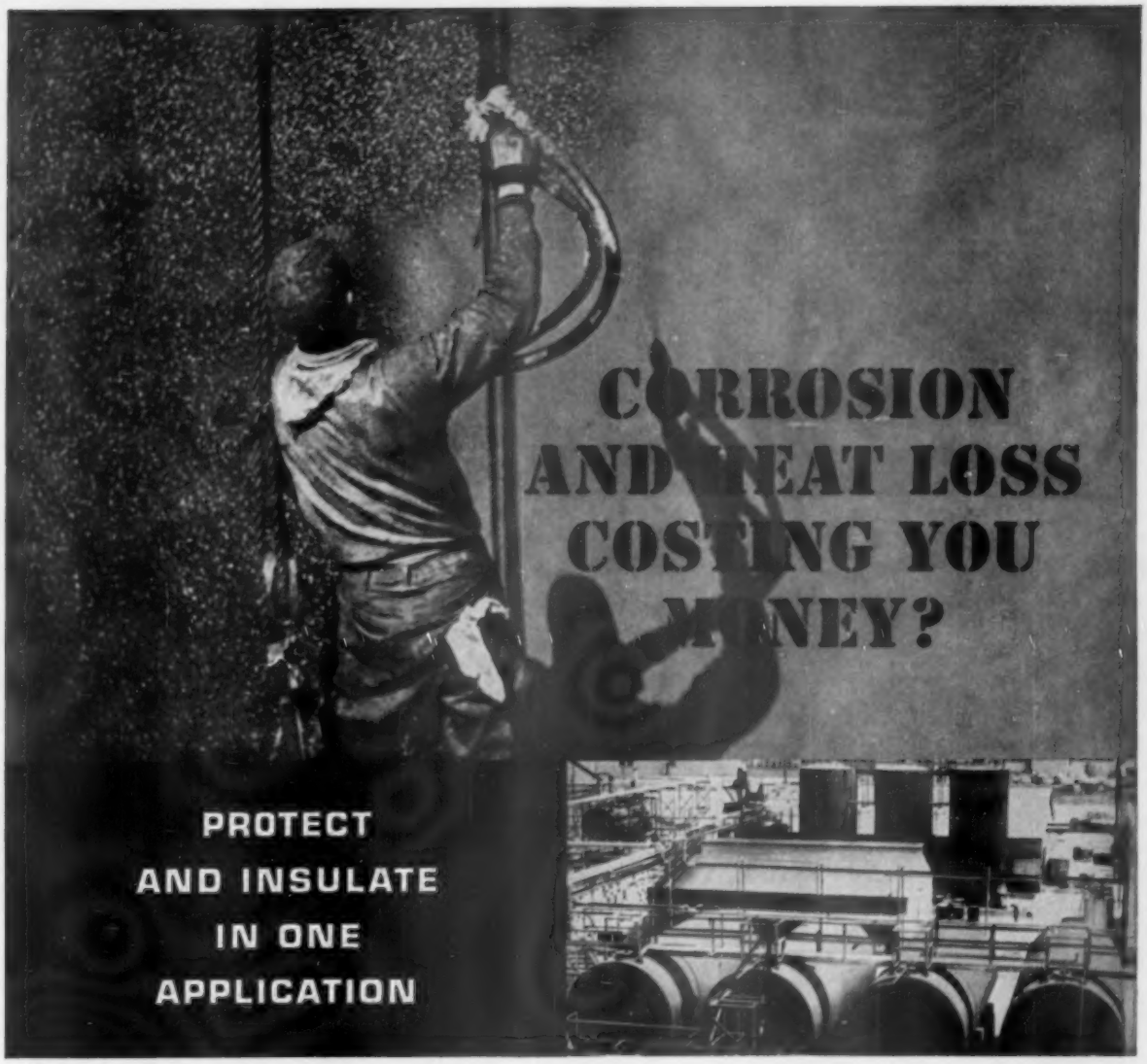

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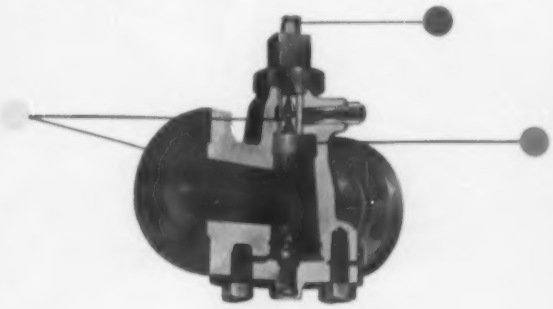

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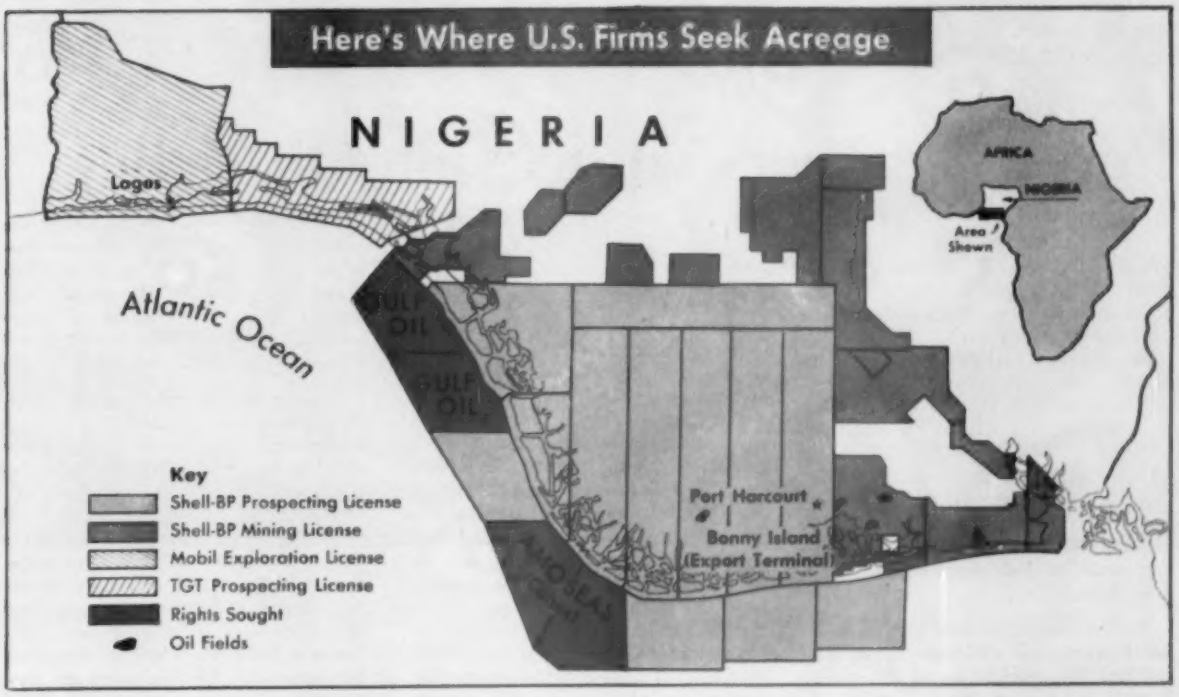


Nigerian Oil Search Moving to Sea

West Africa's largest producing nation considers Gulf Oil, Amoseas bids for high-priced offshore acreage.

NIGERIA—There is a new land play—or more appropriately sea play—under way in Nigeria, where two U.S. firms are seeking high-priced offshore acreage.

Nigeria, at present the largest African producing nation south of the Sahara, has been the object of an oil search for some 23 years. Since the discovery of oil four years ago, the search has become more intense.

The newcomers are Gulf Oil and American Overseas, an affiliate of California-Texas, which have entered applications for tracts on which premiums of $1.4-million have been asked by Nigeria.

Each firm has filed for two 1,000-sq. mi. areas on the continental shelf. The applications are still pending.

Three other foreign firms—Shell-BP of Nigeria, Mobil, and Tennessee Gas Transmission—are currently conducting exploration activities in Nigeria, both offshore and onshore.

• Shell-BP, an old hand in the search here—it started in 1937—recently picked up four 1,000-sq.mi. offshore prospecting licenses. In addition it holds prospecting licenses for eight tracts in the Niger River delta, covering 16,000 sq.mi., and mining leases on 8,300 sq.mi. scattered around Nigeria.

All of Nigeria's production, estimated to reach 35,000 b/d by the end of 1960, presently comes from four Shell-BP fields situated in the delta.

• Mobil holds a 4,000-sq.mi. onshore tract in the Western Region, which it was granted in 1958. The company last year drilled a stratigraphic test, and is currently drilling a wildcat on its acreage.

• Tennessee Gas Transmission was granted a 2,000-sq.mi. onshore tract, next to Mobil's, last February. It is currently conducting seismic work there.

The Nigerian government is having no difficulty getting the $1.4-million premiums it is asking for the new offshore acreage, according to a spokesman in the Ministry of Mines.

Shell-BP says it paid that amount for each of its four new tracts. And the government spokesman says Gulf had agreed to the premium.

Because of Nigeria's new status as an independent nation, the forms of prospecting licenses and mining leases are now undergoing apparently minor changes.

Oil company representatives and government officials have been meeting since February to work out agreements.

Present prospecting licenses are issued for an initial period of three years, with the right of renewal for two more years. The Ministry of Mines may renew such permits for an additional two years.

Upon expiration of the prospecting license, one half of each tract held must be relinquished. The rest of the tract may be converted to a mining lease, which carries full development rights.

At present, the mining leases held by Shell-BP are for 30 years, with right of renewal for an additional 30 years.

Under the old regime, before Nigeria became independent Oct. 1, another kind of permit, the exploration license, was issued for acreage north of 7 degrees north latitude. Mobil, the only holder of such a permit,

expects to convert its rights to one of the new forms soon.

Nigeria has no comprehensive oil law, but there is legislation embodying the 50-50 profit-sharing principle.

The Petroleum Profits Tax Ordinance of last year provided that the government's 50% would include royalties, customs duties, and lease rentals. A tax is levied, if necessary, to bring the government's share to 50%.

Meanwhile, Shell and BP announced agreement in principle to build jointly a $33.6-million refinery of "up to 20,000 b/d" capacity, probably at Port Harcourt, to supply the local market. Completion is set for 1963.

Perez Weathers Attacks on Oil Policy

(From PETROLEUM WEEK'S *Caracas Bureau)*

CARACAS—Oil Minister Juan Perez Alfonzo—and his oil policies—have apparently weathered their first barrage of public criticism in Venezuela during his nearly two years in office.

The attacks on his policies erupted recently as a result of a growing financial crisis. The fact that the attacks were made by business groups indicate that his presence in the government has been a factor in loss of business confidence—which has been one cause of the country's financial difficulties.

Perez's reappointment last week—which surprised no one—shows he still has the confidence of President Romulo Betancourt, and a free hand to carry out his policies.

The president recently accepted resignations offered by all cabinet members to give him a free hand in reorganizing his troubled three-party coalition government. The cabinet shakeup last week followed withdrawal from the coalition of the Democratic Republican Union (URD) party.

The new cabinet as a whole is more conservative in composition than the old. A banker, Dr. Tomas Carrillo Batalla, replaces former Finance Minister Antonio Mayobre—with whose fiscal policies Perez has been identified—and another political independent, Dr. Raul Valera, becomes Labor Minister.

Despite public pressure for more oil exports to help resolve Venezuela's financial deficits, Perez has reaffirmed his policy of limiting exports in order to hold up prices.

Perez, who has been regarded as a chief architect of the government's over-all economic policy, has been under open fire from large segments of Venezuela's business community. Some of the more conservative, and outspoken, have attacked Perez directly, flatly demanding his resignation. A more moderate majority—exemplified by the Federation of Chambers of Commerce & Industry—have limited themselves to questioning his policy of limiting oil exports (PW—Nov.18'60,p94).

Perez has brushed aside the brickbats with the retort that greater oil exports could actually result in lower revenues for Venezuela, by driving prices down.

"The confusion results from thinking that in the present market, greater exports would bring in more foreign exchange earnings," he says.

"I consider that we have obtained the most possible under present conditions, by preventing anguished oil exporters from weakening prices."

Other oil producing countries, he adds, have come to a similar conclusion, as evidenced by the Baghdad conference—at which Venezuela and major Middle East exporting states formed OPEC, the Organization of Petroleum Exporting Countries.

The Oil Minister has now gone one step further with his policy, by setting a year-end deadline for compliance with his new 5% discount limit on crude sales.

Shortly after Baghdad, Perez had announced that in no case would he permit discounts over 5%, but without spelling out the new rules in detail. Recently, however, he said that oil companies are revising sales contracts to bring them within this limit by year's end. He has given no particulars, except to say that some have already been changed, and that the volume of sales involved is small.

The Minister also repeated his previous statement that the over-all average discount on Venezuelan crude is only 6%, but declined to give a breakdown on exactly how much crude is sold at what discounts.

That, he explained, "would be giving carte blanche to all customers" to demand the maximum allowable discount. It is true, he conceded, that a large volume of Venezuelan crude is being discounted. But the size of the discount, he said, is often very small.

Observers in Caracas regard Perez's latest move on discounts as intended to lay the groundwork for consideration of a world "prorationing" plan at the OPEC meeting to be held here in January.

Up to now, in the absence of more concrete official directives, some companies reportedly had continued to makes sales on the basis of the earlier discount rules issued in September: Basically, a maximum 10% discount allowable on contract sales, but with provision for greater discounts—in some cases—to meet competition. Contracts with discounts greater than 50¢ a bbl. were to be revised immediately, while companies were given until Jan. 1 to modify other contracts.

In compliance with these regulations, companies had reassigned liftings to other areas for a small amount

Mobil Loses to ENI in Refining Bid

GHANA—Mobil, which wanted to build a refinery here, last week lost out to the aggressive Italian state oil firm, ENI, whose $20-million refinery bid was accepted.

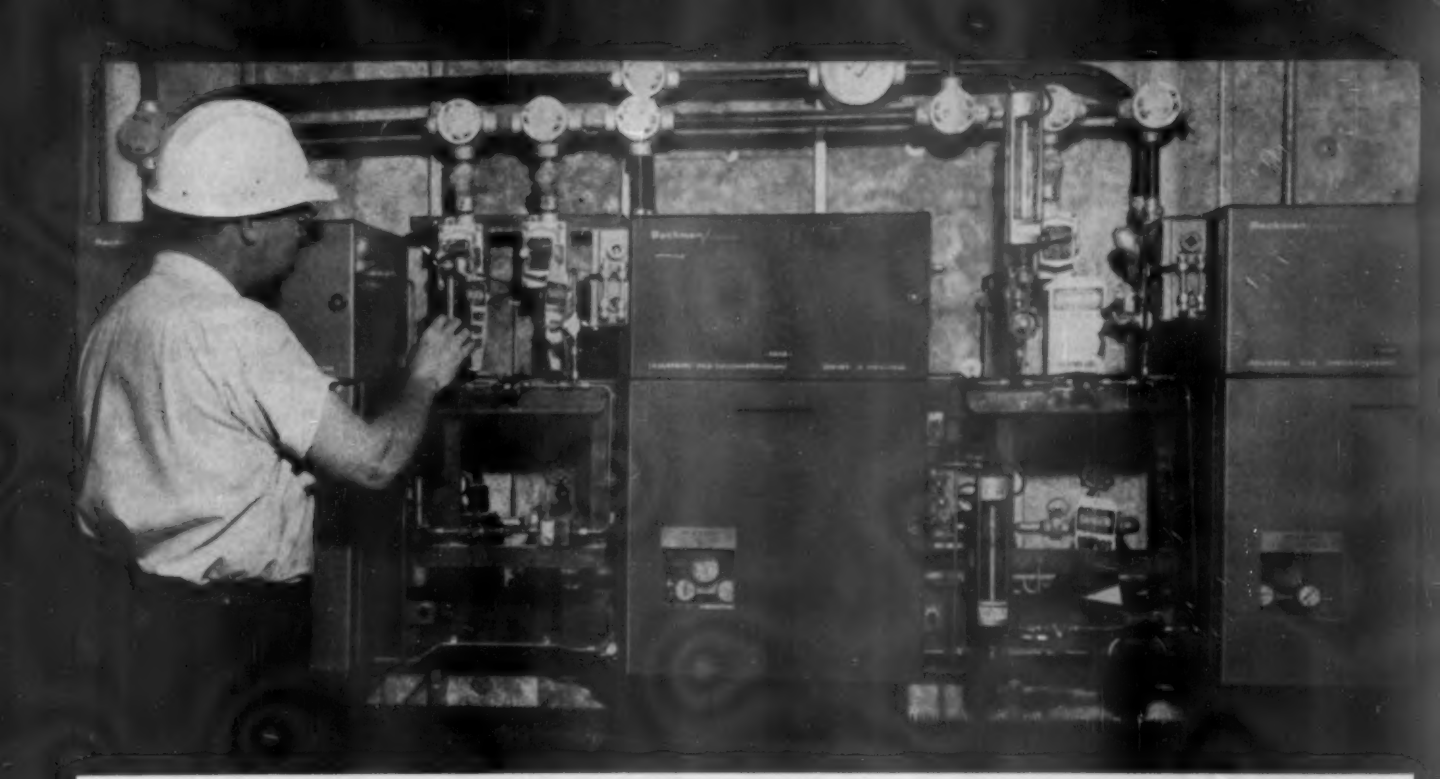
ENI confirmed in Milan last week that it had signed an agreement with Ghana to build a 24,000 b/d installation 15 mi. from Tema.

Under the agreement, the capacity of the plant may eventually be increased to 40,000 b/d. No other details were available.

ENI, moving fast and hard into the African oil picture, has two other firm refinery commitments on the continent—in Tunisia and Morocco.

The $18-million, 25,000 b/d Moroccan installation, is now under construction. ENI has also received approval from Tunisia to build a 20,000 b/d plant. The Tunisian and Moroccan deals both involve 50% government participation.

In addition, ENI has a bid in for a refinery in the Sudan—in competition with a joint bid by Shell and British Petroleum.



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of contract crude being discounted at more than 50¢.

In the meantime, Venezuela's pressing economic problems remain unsolved, and business pressure for oil policy revision continues.

In a new statement on the economic situation, the Federation of Chambers of Commerce & Industry omitted mention of expanded crude exports, but pointed out that Venezuela is losing oil markets.

It also cited declining oil investment, and observed that no steps have been taken to remedy this situation—apparently referring to the question of possible tax relief for oil companies.

In an obvious reference to the Oil Minister's conservation policy, expanded oil exports to ease the budget deficit were again urged in a sharper attack last week by the Caracas Chamber of Commerce.

"A gravely ill person who refuses to take medicine he has on hand, for fear he may need it later, is no far-sighted man but a suicide," the chamber declared.

By contrast with Perez's 4% limit on annual production increases, the chamber argued that Venezuela should keep its full share of the growing world market.

Stimulus for foreign investment was also urged by the chamber. It complained that official policy "has been carried to such an extreme, and in so radical a form," that it has discouraged foreign companies from any projected expansion.

Without specific mention of the new national oil company, the government in addition was urged not to set up any more state companies, and to sell off those it has—or to turn them over to private administration.

It is possible, in fact, that for sheer lack of money, activation of the Venezuelan Petroleum Corp. will be further delayed.

Despite these urgings from business groups, any significant tax relief for oil companies appears out of the question, since Venezuela is caught in a vicious circle of economic and political troubles.

Ceaseless political agitation and social violence is inhibiting new petroleum investment, both domestic and foreign. As long as this situation continues, the government will need every possible cent of revenue from its traditional sources—oil and iron.

And the political situation may get worse before it gets better. With the breakup of the three-party government coalition, President Betancourt may find himself facing a powerful leftist "popular front," made up of Communists, leftists, and the URD party—or parts of it. Such an opposition could threaten the stability of the regime.

In the meantime, Venezuela has yet to find a new source of revenue for its growing budgetary and foreign exchange deficits.

The national budgetary deficit is estimated at $180-million so far this fiscal year, and the foreign-exchange deficit for calendar 1960 would be close to $400-million if Venezuela had not already obtained over $300-million in short- and medium-term loans.

The mild currency-exchange controls recently imposed will ease only one part of the financial crisis—a flight of capital.

The budget deficit is not due to loss of oil revenues, but to bureaucratic spending and a decline in over-all tax collections because of business recession.

Oil production, by contrast, is running above last year (by 3.7% at the end of October), and royalty payments—pegged to U.S. prices—are holding up.

Any decline in oil company income tax payments that may result from lower realizations and higher labor costs won't show up until next year, when 1960 taxes are paid.

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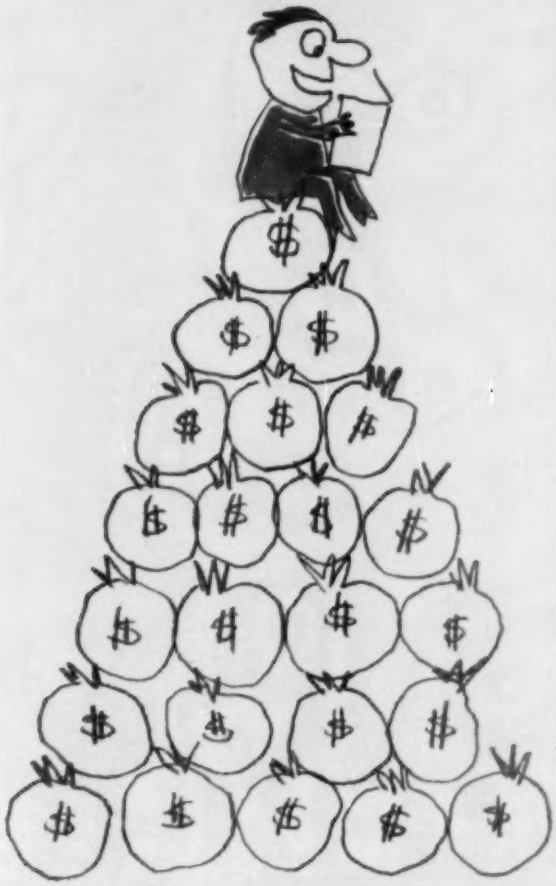

Most of us recall at least one classmate who "never cracked a book", but somehow got by. Wonder where he is today?

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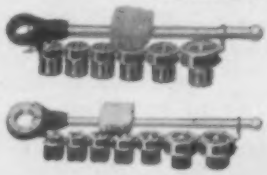

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What's New / AROUND THE WORLD

LIBYA—The first relinquishment date for Libya acreage fell due last week, marking the fifth anniversary of the start of the oil play here.

Two firms, Esso and Hunt International, each gave up 25% of one tract—Esso's No. 1, site of some noncommercial oil and gas finds, and Hunt's No. 2. A spate of relinquishments will be made on Dec. 12 and Dec. 31.

•

HOLLAND—Jersey Standard and Shell have two new promising natural gas discoveries in north Holland —at Delfzijl, near the German port, Emden, and at Slochteren.

One well has been completed at Delfzijl and two at Slochteren. The potentials, though commercial, have not been determined.

Shell and Jersey, joint producers in Holland, also have gas production in two other Holland districts.

•

IRELAND—Ambassador Oil Corp. expects to spud its first wildcat in Ireland in 1961, the company reported last week.

The Fort Worth independent, which holds a concession covering all the republic, is currently conducting seismic studies there.

•

IRAN—Italy's ENI group is drilling its second offshore test in the Persian Gulf for its joint account with National Iranian Oil Co. The No. 2, now below 2,674 ft., is being drilled from the same fixed platform as No. 1, which has found commercial production and which is still being tested at 11,011 ft.

•

WEST GERMANY—Construction of the first refinery in the Frankfurt area is reported under consideration by a group of German and foreign oil companies, unidentified as yet. The proposal is said to be sparked specifically by plans of Farbwerke Hoechst for considerable expansion of its petrochemical production facilities at Frankfurt. This industrialized area could otherwise be supplied by south German refineries that are in a more advanced stage of planning.

•

COLOMBIA—Ambassador Oil Corp. is drilling another wildcat on its 25,000 acre El Campito concession near Barranquilla.

The test is slated to go to Eocene sands at 5,500 ft.

Last year, the Fort Worth independent drilled a dry hole, No. 1 El Campito, which "confirmed the presence of a geological feature with strong possibilities for accumulation of oil and gas," the company said.

•

PERU—Mobil will start wildcatting in Peru next year with two tests it will drill in the east, on acreage held by two other companies with which it will share any production found.

The first, No. 1 Zorrillos, will be spudded about Jan. 1 on an anticline about 40 mi. northwest of Ganzo Azul, one of the only two fields in the remote trans-Andean area. The second, No. 1 Aguaytia, will be drilled later, 5 mi. to the northwest, on another structure that may extend into acreage held by Mobil. Loffland Bros. is the drilling contractor.

The companies in the deal with Mobil are Peruvian Oil & Minerals, a Canadian-owned firm, and Cia Peruana de Petroleo "El Oriente," a Peruvian company which, with German partners, established Maquia as the second field in eastern Peru.

•

IRAN—Oil output topped 1.2-million b/d in October for the first time. Production climbed 96,000 b/d from the previous high, in September, to an average 1,202,000 b/d. Output in October, 1959, was 942,000 b/d.

•

MOZAMBIQUE—A plan to build a $16.8-million products pipeline from the port of Beira into Rhodesia has been advanced one step toward realization. After three years of negotiations, Rhodesian businessman R. W. Rowland has been granted the right to build a pipeline to the Rhodesian border through Mozambique, a Portuguese colony. The Rhodesian government, however, has not yet decided whether it will approve the plan to carry the products line to Salisbury, where Shell and an American-backed group have each proposed building a refinery.

Getty Interested in Bavaria Pipeline

WEST GERMANY—Getty Oil emerged last week as the first U.S. company to show some interest in an Italian proposal for a crude oil line into Bavaria from Venice.

According to reports from Munich, president J. Paul Getty is discussing possible participation in a 350-mi. trans-Alpine line—apparently in return for a 15-year crude-supply contract for Getty Oil, which has no present refining interests in Germany.

The line would be laid along a highway being built between Venice and Munich, under a plan proposed over a year ago by a private Italian group. It is now said to be under study by German interests.

This plan is distinct from the Italy-to-Munich pipe line that Italy's state-owned ENI originally proposed to run through Switzerland, from Genoa.

Although ENI hasn't yet officially shelved this plan, it has reportedly been considering alternate routes. Both Venice and Trieste have been mentioned as possible starting points, which appears to indicate that the Swiss routing, at least, will be dropped.

ENI is now reportedly proposing a route through Austria instead—there possibly to link with the big Soviet-bloc pipeline system under construction through eastern Europe.

According to reports from Vienna, ENI's Enrico Mattei has discussed proposals with the Austrians for a line from Trieste to Vienna. This is only 40 mi. from one Czech terminal of the 2,500-mi. Communist-bloc line, which the Russians have shown interest in extending into Austria.

If these proposals are accepted, ENI would be able to take low-cost delivery of its Russian crude in Austria—possibly to carry it into Bavaria.

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Heating Oil Progress: Good and Bad

Heating oil marketers have an opportunity this month to evaluate the progress they have made in reviving their competitive strength. The record: good and bad.

Basically, oil marketers have two prescribed remedies to use in overcoming the competitive ills brought on by an overdose of gas heat in their markets.

These two remedies are:

- Closer coordination among all segments of the industry, so that promotion, training, and other aspects of fuel oil marketing can be improved. Here oil men have hoped to put together an organization to compete with the formidable American Gas Assn.
- A renewed search for better fuels, better heating equipment, and a broadening of the market for fuel oil.

Oil marketers have been gratifyingly successful in forging a research program.

Last month, the board of directors of API provided the final approval necessary to launch a research program that will advance on three fronts:

- Development of improved equipment for new heating installations and conversions from other fuels.
- Development of new uses for heating oil.
- Development of improved equipment for the replacement of outmoded oil burners.

A dual system of cooperative research and contract research has been established to advance this program. Under the former, the research laboratories of individual oil companies will be used. Projects conducted in this phase of the program will be financed by the oil companies themselves.

In contract research, independent research organizations will be prevailed upon, under API sponsorship and supervision, to contribute research activities in areas that are outside the capabilities of the oil-company researchers.

The API's Technical Advisory Group (TAG) will integrate efforts in both areas as part of the total program.

Plans for research projects to be conducted in 1961, will be presented in March to equipment manufacturers and others actively pursuing research and development, according to J. L. Minner, chairman of the research subcommittee of API's fuel oil committee.

The 1961 program will range over nine individual areas of study, including unconventional means for fuel atomization, the effects of spray droplet size on combustion, and unconventional ignition systems.

Minner makes clear, however, that API will not be seeking a "burner-to-end-all burners"—a burner to be designed, standardized, and promoted by API.

Instead, he says, "we have formulated a program which is aimed at stimulating healthy competition in new development by the equipment industry."

In laying the foundation for a unified oil-heat organization, oil marketers have not been as successful as many would wish.

In fact, at API's fall meeting last month, there were many expressions of impatience with the efforts of the industry in setting up its "one-roof" organization (incorporating the National Fueloil Council, the Oil Heat Institute of America, and the research operation of API).

The National Oil Jobbers Council decided to ask each major marketer to appoint one or two men to work intensively for the development of the "one-roof" organization. It set a deadline of Apr. 1, 1961, by which time it hopes to see the unit created.

Meanwhile, L. S. Marshman of Mobil Oil Co., who has spearheaded a 12-man organization committee, said last month that the unit "may be ready by Feb. 1 or Mar. 1, but no later than Apr. 1."

"Our efforts haven't collapsed," he said, "but we haven't moved fast enough."

What caused the slow-down? Marshman named these reasons:

- Sniping by a few individuals who say they're for the organization but don't act that way.
- Unwillingness of some oil-company representatives to devote the necessary time to the organization committee.
- The apparent official indifference at OHI and NFC.

Marshman, who will be giving up his spearheading role as a result of a company transfer, left these suggestions to those major suppliers who would carry on the work.

- Allow fuel oil managers to spend sufficient time on committee work.
- Insist on a deadline.
- Indicate that splinter groups will not receive any financial backing beyond the deadline, even if the unified organization does not materialize.
- Have company lawyers inspect the proposed constitution and bylaws of the organization.
- Consider underwriting the expenses of an oil man who would be selected to head the organization.

Independents Hit Shell's Pricing

Shell Oil Co.'s pricing tactics in parts of California were voted unjust by the California Petroleum Marketers Council.

Shell, according to CPMC, has been pricing its branded gasoline within one cent of independent brand prices in Sacramento and Stockton, California. (A two-cent differential between branded and independent prices is traditionally maintained by majors and private branders.)

In a recent association questionnaire, 75% of the council members who participated indicated they felt Shell was not justified in using a policy of pricing within one cent of independents.

The same proportion of members said that the one-cent differential situation merits some action from CPMC.

And 90% indicated that they thought the council had not been too harsh with Shell. The other 10% was split: 5% said CPMC had been harsh, while 5% did not have an opinion.

The council is considering sending a complaint to the Federal Trade Commission.

Recently, the CPMC was assured by a jobber authority that it had enough evidence to justify a presentation to FTC, but that a complaint must be backed by 100% of the CPMC membership to be effective.

This week, the council meets to determine for itself "whether there is suf-

ficient legal basis for filing of a complaint."

The one-cent pricing controversy stems from action that Shell has been taking for a period of more than a year.

In certain isolated instances in Sacramento and Stockton, Shell has dropped its prices to within one cent of independent prices.

CPMC feels that Shell made these reductions to put its stations in competition with other retailers—with another supplier, though some of the majors have followed Shell in its price cuts.

A Shell spokesman denies that the company has any policy regarding the use of one-cent price differentials. Instead, he indicated, Shell adjusts its prices to meet local competitive conditions.

What's New / IN MARKETING

Marketers in Washington state can't anticipate a decrease in gasoline taxes next year, even if the proposed production in the federal gasoline levy materializes.

The state legislature recently heard a committee report that puts estimated road-fund requirements at $4-billion (scheduled to be collected by 1975).

As the only way to approach such a figure, the report recommends an increase in state gasoline taxes: up 1¢, if the temporary 1¢ federal tax is dropped; up ½¢, if the federal levy is retained.

DX Sunray Oil Co. expands its marketing operations into mid-Mississippi this week with the integration of 6 bulk plants and 16 service stations formerly held by Goyer Oil Co.

The Midwest major also gains a terminal on the Mississippi River and 800 dealer, farm, and consumer accounts in a 10-county area in west-central Mississippi.

Prior to the purchase of Goyer, DX Sunray marketed in northern Mississippi only.

•

Service station dealers continued to take the lion's share of the replacement battery business this year and moved into first place in the spark plug market, according to the results of the National Automobile & Tire Survey.

This survey, sponsored by Look magazine and conducted by Alfred Politz Research, Inc., showed that service stations attracted 35.9% of the battery purchasers this year and 34.5% of the spark plug trade.

The closest competitor for the stations' battery sales were mail order-retail store type outlets, which took 21.2%% of the market.

Garages specializing in repairs and storage ranked second in the spark plug market (with 22.7%), falling from the first-place position they held last year.

•

Car makers are taking modest steps to alert motorists to the adverse effect that short-trip, stop-and-go driving can have on motor oil.

In almost every driving manual issued with their 1961 models, manufacturers are warning motorists to change their oil more frequently than usual, if they use their cars for numerous short trips.

Perhaps the most important concession to the need for frequent oil changes in short-trip driving is made by Ford Motor Co. in its Ford and Falcon manuals.

Ford indicates that a 4,000-mi. change interval is recommended, but "if your car is driven often in stop-and-go traffic, on short trips or through dusty roads, service more frequently."

For its Lincoln Continental, however, Ford makes no exception to its 6,000-mi. recommendation, except to place a maximum time limit of six-months on oil change intervals.

'Variety Store' Stations Outlawed

In Santa Clara County, Calif., town planners are clamping down on the "variety store" trend in service station merchandising.

The county planning commission has ruled that service stations can sell only items directly connected with gasoline, oil, or TBA.

If dealers wish to diversify into other products—such as mops, hoes, and ladders—they must limit the location of their displays of such items to inside the station.

Furthermore, all flags, spinners, and other attention-getting items are proscribed.

The ruling will not apply to the score of "five and dime" stations that have clustered in the county seat of San Jose, unless the planners find a way to extend their ruling to existing stations.

Though confined to one county, the ruling does have special significance for dealers everywhere: It typifies the growing municipal repugnance for service station operations.

In effect, the Santa Clara move emphasizes the conflict that exists for service station dealers. Told by their suppliers and retailing experts that they must broaden their product line, dealers have branched into nonautomotive sales.

But when they carry this diversification into more than a sideline operation, they confront city planners moving against them with restrictive codes.

"These stations are an eyesore and they are springing up much too fast," says a Santa Clara County commissioner, typifying the reaction of the city officials all over the country.

Over the next five years oil marketers will probably be hearing more reactions like this. By 1965, one retailing expert has said, 50,000 service stations will have become important centers for nonautomotive products.

A Nalco PRODUCT MANAGER

Answers Questions about Cooling Tower Deterioration And Other Microbiological Problems

More Knowledge, Better Chemical Controls Offer New Paths to Economical Tower Treatment

Since cooling towers offer many types of fungi and bacteria choice conditions for growth, the battle for microbiological control is a continuing one throughout the country.

Nalco approaches cooling tower protection as part of the overall job of keeping the entire cooling system free of scale, corrosion, and microbiological growths of all kinds. Such a complete program is essential for most efficient cooling tower and system operation.

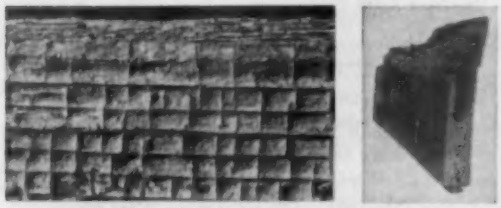
Here are some of the frequently-asked questions about cooling tower deterioration; and the answers we believe to be accurate.

Question: How can you tell when wood is being attacked chemically or microbiologically?

Answer. Careful tower inspection, plus microbiological analyses of wood from various parts of the tower (framing, fill, mist eliminator, top deck, and stack), and from samples of cooling water.

Question: Is wood deterioration common to certain parts of towers?

Answer. No. Microbiological attacks may occur in any part of the tower. Internal decay or deep rot is common to non-water-washed sections; while surface decay or chemical attack may occur anywhere in the system.



Wood deterioration samples from cooling towers. Left, cross checked surface decay; right, deep internal rot.

Question: Does tower location make any difference?

Answer: Apparently not. Towers throughout the world have been attacked.

Question: What types of organisms produce wood decay?

Answer: The same ones that produce forest decay. Organisms of the Fungi Imperfecti class cause both surface decay and internal rot. Deep rot is also caused by fungus organisms of the Basiodiomycetes class. Both classes are cellulolytic organisms—cellulose eaters, in effect, as they convert cellulose for nutrient uses, and in so doing, weaken the wood to the point of eventual collapse.

Question: Does chlorine predispose wood to microbiological decay?

Answer: There are considerable data, gathered by interested independent organizations, indicating that deterioration is prevalent in towers using chlorine as an algicide and bactericide. Whether chlorine predisposes wood to decay has not been fully established. However, actual plant experience indicates that a non-oxidizing microbiological program can provide control of wood deterioration. Nalco non-oxidizing microbiocides can also be used to provide protection against decay where chlorine is a part of the overall control program.

E. H. Hurst, Product Manager, Water Stabilization Chemicals, Nalco Chemical Company

Question: Do any chemicals do a complete job of microbiological control in cooling towers?

Answer: Yes. A Nalco program of non-oxidizing microbiocides designed and engineered for your plant problems can provide complete control against all types of microbiological activity . . . slime, algae, corrosive bacteria and wood decaying organisms.

Question: Do these non-oxidizing microbiocides *stay* effective? Economically?

Answer: Yes, although changes or additions in the types of organisms present may change the type or dosage of treatment used. Nalco programs have the flexibility required to meet such changes and maintain effective control. Long-range economy of a Nalco program for complete cooling system protection is being demonstrated in hundreds of systems—some of them for twenty years or more!

Question: Is this the whole story on microbiological control and deterioration?

Answer: It is hardly a beginning! Details on Nalco chemicals and services, and specific programs for cooling system protection are available promptly from your Nalco Representative. Ask him about the searching, comprehensive surveys and analyses made before a program is recommended . . . About the continuing surveillance of program effectiveness and economy . . . And let him show you, specifically, what Nalco can do for you.

On request: A technical data file containing more than 24 pages of information on this subject. Ask for File C3, Microbiological Control.

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Nalco CHEMICALS
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another
TRETOLITE SERVICE
report

SOLVO.
PARAFFIN REMOVER

. . . prevents paraffin accumulation

ELIMINATES COSTLY WELL-PULLING, STEAMING, CHEMICAL CLEANING

In few places is the wisdom of the "ounce of prevention" more evident than in treatment against paraffin accumulation.

Corrective measures such as well-pulling, steaming, and chemical clean-out are costly, and they are only temporary at best. They provide no permanent corrective answer to the problem and paraffin accumulation will soon be back, requiring another treatment.

SOLVO* Paraffin Remover corrects by preventing

In many applications SOLVO will remove paraffin deposits, but it is most effective and economical when used in a planned program of *preventive treatment.*

What SOLVO is

SOLVO Paraffin Removers are organic liquids, dispersible in both oil and water. They contain no carbon bisulfide or carbon tetrachloride and are essentially chloride-free. This is important to the refiner. SOLVO Paraffin Removers are safe to use because they have high flash points, low vapor pressures.

Ask your Tretolite field service engineer (the "Man in the Red Car") for more facts and figures on SOLVO-preventive maintenance in *your* wells.

TPR-60-2

*Registered trademark of Petrolite Corporation

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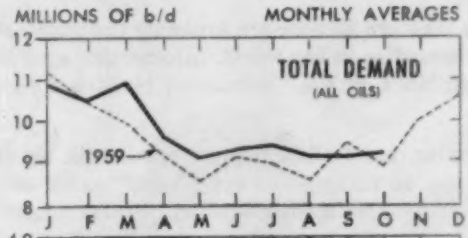
PETROLEUM WEEK'S

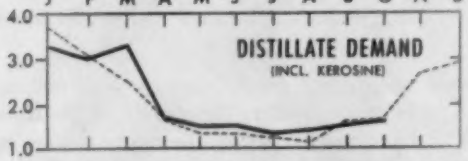
Fingertip Figures



Figures for period ended Nov. 25, except as noted

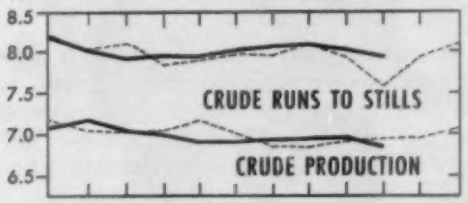
TOTAL DEMAND

Latest 4-week average	9.901
Year ago	10.049



DISTILLATE DEMAND

Latest 4-week average	2.431
Year ago	2.588

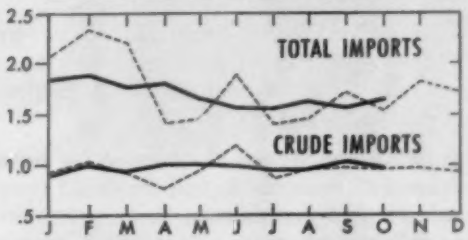


RUNS TO STILLS

Latest week	8.092
Previous week	7.957
Year ago	7.973

CRUDE PRODUCTION

Latest week	6.992
Previous week	6.968
Year ago	6.969

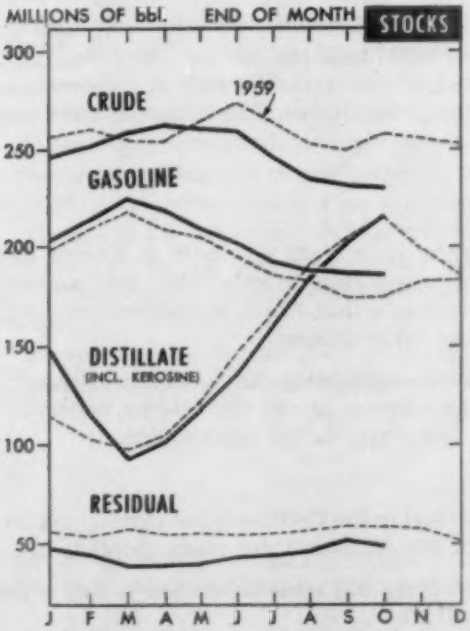


TOTAL IMPORTS

Latest week	1.876
Previous week	1.613
Year ago	1.794

CRUDE IMPORTS

Latest week	1.218
Previous week	.908
Year ago	1.018



CRUDE STOCKS

Week-ended Nov. 19	237.0
Previous week	235.6
Year ago	252.5

GASOLINE

Latest week	187.9
Previous week	184.9
Year ago	179.2

DISTILLATES

Latest week	212.8
Previous week	212.2
Year ago	202.6

RESIDUAL

Latest week	49.0
Previous week	48.0
Year ago	56.2

The past two weeks' increases in refinery runs have been substantial—and, in view of the current demand situation, completely unwarranted.

Crude throughput last week averaged 8,092,000 b/d, up 105,000 b/d from the previous week. This is the highest since mid-September, which marked the end of the summer processing splurge.

Over the two-week period, runs were up 375,000 b/d.

Product demand is weak, even compared with last year.

Total demand, which averaged 9,901,000 b/d for the latest four-week period, is off 148,000 b/d from a year ago. Distillates demand is down 155,000 b/d from the like 1959 period, averaging 2,431,000 b/d.

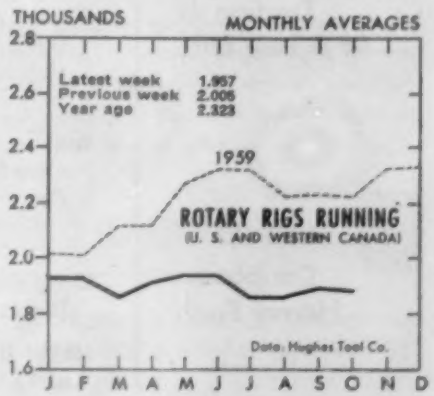
Demand for burning oils was particularly sluggish last fall because of the unseasonably warm weather through December. But the current heating season is proving to be still warmer, with 6.4% fewer degree days so far than a year ago.

Stocks of all major products climbed last week. Barring unusually snappy weather next month, the industry may find itself in a worse inventory position at year's end than in 1959.

Distillates stocks—the key figures to watch at this time of year—total 212.8-million bbl., or 9.6-million higher than a year ago.

Earlier, economists had forecast that distillates stocks would close at 167-million bbl.

But last year, distillates inventories dropped only 25-million bbl. in December. If the weather proves equally mild this month, distillates stocks may close some 10-million bbl. higher than expected, which bodes no good for prices.



The Market Trend

European Prices Are Under Lock and Key

Who will crack the void on price information for oil in Western Europe? Up to now, this huge market—nearly 200-million tons a year—has been closed off from the public domain.

Wholesale markets for oil in Western Europe are probably the greatest enigma of any market for any commodity in the world. Information simply doesn't filter out. It's a big green lawn with a "Beware of the Dog" sign posted on the outside.

Italy is a sizeable export center, but Italian refiners won't talk about cargo prices. First of all, they say, so many sales are "dump" sales, and nobody is proud of low prices. Also, there's the so-called "Friday night" cargo selling—very cheap, too—by independent refiners who have to meet their weekend payrolls.

English Channel port refiners are logical candidates to post selling prices. But they aren't talking about cargoes, either. The result: A sizeable volume of sales to Scandinavia and to inland points in Germany moves in the dark.

The Russians have proved exceedingly shy when it comes to price information, too. Asked about Black Sea or Klaipeda export prices, to Europe, the Russians can demur as gracefully as anybody in France or England. "We sell on Platt's Oilgram," they say. (They really mean "off" Oilgram.) Or they blandly ask, "Will it upset the western international oil companies if we post prices?"

European buyers aren't talking either. Every buyer in Europe, by some magic unknown to U.S. customs, is convinced that he is getting a "special" price. The price being special, it therefore would be a tactical error to disclose it. Or so goes the reasoning.

And some of the governments in Europe are not at all eager for price information to get around. The French oil economy is well insulated from the rest of the world, and the French would just as soon their consumers don't know what's going on. Ditto for Spain, where an uninspired monopoly rules the roost.

But sooner or later, someone will break the ice. As one government agency has expressed it, ignorance of the market is such that normal behavior between sellers and buyers is impossible. This situation can't last indefinitely.

Trading Is At A Low Ebb:

Oil and ship brokers are crying the blues right now both in Europe and the U.S. Spot oil sales are somewhere close to an all-time low. And the ship brokers say the commissions on a Gulf-North of Hatteras trade (at "minus 40%") hardly cover the cable charges.

Brokers thrive on change, a prime example being the Suez crisis. Recently, also, there have been too many mergers to suit the trading fraternity. For every merger means one less buyer in the marketplace.

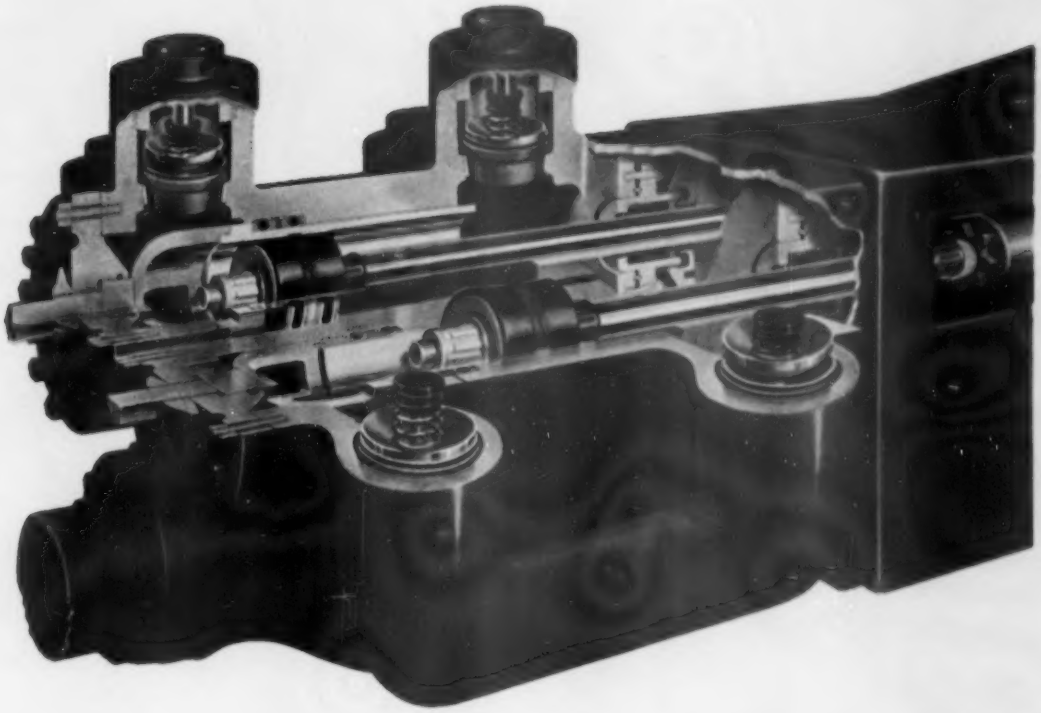
Caribbean Heavy Fuel:

The discount price for bunker "C" fuel in the Caribbean has moved up a bit. It was stuck at $1.60 a bbl., or 40¢ off posted, for many months.

Maybe it's a sign that winter's coming, but some sellers are asking a net of $1.65, and others hope for $1.70.

The 'Inside Story' of the Heart of Your Rig

. . . by MISSION



This cutaway view of a mud pump shows where the vital Mission fluid-end parts fit and why they are essential to correct operation. Forces on these parts are staggering. For example, pistons and rods may be subjected to forces of more than 100,000 pounds.

Liner packing and gland packing may be exposed to pressures exceeding 2000 psi, and valves and seats are required to stand violent impact every time they close.

Liners, also, are subject to "rocking," which aggravates both piston and liner packing wear unless all critical liner dimensions are held within API specifications.

These forces may be multiplied by shock loading at times, and they are completely reversed at least once every second. When you remember that mud may contain abrasive sand to cut metal parts, corrosive chemicals to pit them, and oil to attack rubber, it seems obvious that only the best pump parts stand a chance.

These Mission Pump Parts are in direct working contact with the drilling fluid, so it is easy to see that they are vital to correct pump operation. When you remember that they work together for trouble-free service, it makes sense to specify *all* Mission Pump Parts—exclusively—in all your pumps. Your pumps will perform better, require fewer repairs and cost less to maintain when you do. The famous Mission Guarantee assures you of this service.

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Fleet owners want only the best, and they'll go to the marketer who can give it to them. That's you . . . if you handle Sun lubricants.

You can sell a Sun product under your own brand name anywhere. In many areas you can get a distributorship for Sunoco fuel oils and other branded Sun products. In some areas, distributorships for Blue Sunoco gasolines are still available.

Write to SUN OIL COMPANY, Dept. PW-12, 1608 Walnut Street, Philadelphia 3, Pa. In Canada: Sun Oil Company Limited, Toronto and Montreal.

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THE BEST ECONOMY OF ALL

ORIGINATORS OF FAMOUS CUSTOM-BLENDED BLUE SUNOCO GASOLINES

The Market Place AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All prices as of November 28

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U. S. Gulf Coast, cargoes
- Gasoline, 98 oct prem....12.25-13.25
- Gasoline, 92 oct reg....11.25-11.5
- Kerosine....9-10
- Heating oil, No. 2....8.25-9
- Gas oil, 48-52, d.i....8.5-8.875
- Fuel oil, bunker "C"....$2.30

Caribbean, cargoes
- Avgas, Grade 100/130....14.75
- Gasoline, 93 oct research prem....11
- Gasoline, 87 oct research reg....10.125
- Gasoline, 80 oct research....9.375
- Gasoline, 70-72 oct motor method....9.25
- Kerosine....9.25
- Heating oil, No. 2....8.125
- Gas oil, 48-52 d.i....8.375
- Fuel oil, bunker "C"....$2.00

New York Harbor, barges
- Kerosine....9.8-10.05
- Heating oil, No. 2....8.8-9.05
- Fuel oil, No. 6....$2.62

Okla.-Group 3, northern shpt., bulk
- Gasoline, 91 oct reg....12.5-13.25
- Kerosine....10.5-10.625
- Heating oil, No. 2....9-9.25
- Fuel oil, No. 6....$1.80-1.90

Chicago, bulk
- Gasoline, 92 oct reg....12.625
- Heating oil, No. 2....9.5-11.35
- Fuel oil, No. 6 high sulfur....7.65

Los Angeles, rack
- Gasoline, 88 oct reg....11-12.65
- Diesel fuel, PS 200....7.75-11.25
- Light fuel, PS 300....$2.90
- Heavy fuel, PS 400....$2.05-2.45

Natural Gasoline, Grade 26-70
- FOB Group 3....4.5
- FOB Breckenridge, Tex....4

LP-Gas
- Propane, Oklahoma (Group 3)....4.5-5
- Propane, Baton Rouge....5.625

Pennsylvania Lubes
- Bright stock, 25 p.t....25
- 200 vis. neutral, 25 p.t....28

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent, 95 v.i....26-27
- Neutral, solvent, 200-210 vis....23-24

Gulf Coast Lubes
- Bright stock, solvent, 95 v.i....26
- Neutral, solvent, 200 vis....23

Eastern Hemisphere

Singapore (Pulau Bukom) cargoes
- Avgas, grade 100/130....15.5
- Gasoline, 79 oct research....9.125
- Kerosine....9.625
- Gas oil, 48 d.i. minimum....8.75

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, (Okla.-Kan.), 36.0-36.9....$2.69-2.97
- North Dakota, 36.0-36.9....2.47-2.87
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9....3.50
  - Gulf Coast, Upper & Lower, 26.0-26.9....2.92-3.22
  - West Texas, sweet, 36.0-36.9....3.00
  - West Texas, N.M., inter., 36.0-36.9....2.93
  - West Texas, N.M., sour, 32.0-32.9....2.71
  - East Texas, flat....3.05-3.25
  - Mirando, 28.0-28.9....2.96-3.31
- Illinois Basin, flat....3.00-3.05
- Pennsylvania Grade, Bradford dist., flat....4.80
- California, Signal Hill, 21.0-21.9....2.331
- North Louisiana-Arkansas, 36.0-36.9....2.72-3.02
- Wyoming, sweet, 36.0-36.9....2.85-2.90
- Wyoming, sour, 32.0-32.9....2.63-2.71

Canada (flat prices, at the well)
- Pembina (Alta.)....$2.38
- Leduc-Woodbend (Alta.)....2.53
- Redwater (Alta.)....2.42
- Steelman A (Sask.)....2.425
- Virden (Man.)....2.285

Venezuela (Cargoes, FOB lifting port designated)
- San Joaquin, 41.0-41.9, Puerto la Cruz....$3.10
- Oficina, 35.0-35.9, Puerto la Cruz....2.80
- Tia Juana, Medium, 26.0-26.9, Amuay....2.30
- Bachaquero, flat, La Salina....1.85
- Lagomar, 31-31.9, Cardon....2.55
- Lagunillas Heavy, flat, La Salina....2.07

†*Differential per deg. of grav. varies*

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabia, 34.0-34.9, Ras Tanura....$1.80*
- Safaniya, 27.0-27.9, Ras Tanura....1.47
- Iran, 34.0-34.9, Bandar Mashur....1.78
- Iran, 34.0-34.9, Abadan....1.73
- Iraq, 35.0-35.9, Fao....1.72
- Kuwait, 31.0-31.9, Mina-al-Ahmadi....1.59
- Qatar, 41.0-41.9, Umm Said....1.95
- N. Zone, Burghan, 23.5-24.4, Mina Saud....1.48
- N. Zone, Ratawi, 23.5-24.4, Mina Saud....1.41
- N. Zone, Eocene, 16.5-17.4, Mina Saud....1.28

Middle East, Eastern Mediterranean
- Arabia, 34.0-34.9, Sidon....$2.17
- Iraq, 36.0-36.9, Tripoli, Banias....2.21

North Africa, Phillipeville, Algeria
- Hassi Messaoud, 48 and above....Withdrawn

KEY TANKER RATES

(Last paid, per long ton, single voyage)

U.S. Gulf-New York, clean....(USMC—10%) $2.56†
U.S. Gulf-New York, dirty....(USMC—20%) $2.28†
NWI-USNH, dirty....(USMC—35%) $1.79†
NWI-UK/Cont., dirty....(Scale—55%) 14/9*
Persian Gulf-UK/Cont., dirty....(Scale—40%) 35/7*
Persian Gulf-USNH, dirty....(USMC—55%) $5.72

**Sterling*

DALLAS R. LAMONT has been elected senior vice-president in charge of research and engineering of Socony Mobil Oil Co., New York. In addition to research, he will be responsible for the engineering and operations analysis, process promotion, and products department. He succeeds **Arthur V. Danner**, who has been elected an executive vice-president of Socony Mobil, and has become president of Mobil Petroleum Co., a new Socony Mobil operating division which will be responsible for Socony Mobil's interests in the Far East, Australasia, and eastern and southern Africa, formerly operated by Standard-Vacuum Oil Co. Lamont and Danner are also Socony Mobil directors.

D. R. Lamont

J. McAfee

DR. JERRY McAFEE, formerly vice-president engineering, for Gulf Oil Corp.'s manufacturing department, has been named to the newly created position of vice-president, executive technical advisor. He will report to Gulf's management on the results of technical studies involving various world-wide activities of the company. He will also serve as management's personal technical representative in preliminary discussions and evaluations of technical proposals. McAfee, who joined the company in 1945 at the Port Arthur refinery, was elected vice-president and associate director of research for Gulf Research & Development Co. in 1954. A year later he became vice-president, engineering, manufacturing department.

R. (Cotton) MAKIN, formerly president of Makin Drilling Co., which operated in southeastern New Mexico and West Texas, has accepted a position as consultant for Chinese Petroleum Corp., in Formosa. He will be located in Taipei.

J. E. Kircher

R. G. Parker

DR. JOHN E. KIRCHER has been named general manager of Continental Oil Co.'s southwestern region, with offices in Ft. Worth, and **R. G. PARKER** has been appointed production manager of that region. Kircher, who joined Conoco as manager of the petrochemical department when it was organized in 1951, was most recently assistant to a senior vice-president of Conoco. Kircher succeeds **W. O. Ham, Jr.**, who recently was elected a vice-president following his transfer to Houston as general manager of the domestic exploration department. Parker was formerly assistant general manager of Conoco's central region, with headquarters in Oklahoma City. In his new position, Parker succeeds **Hugh L. Johnston**, who has retired. Parker, who joined the company in 1939, was assistant production manager of the southwestern region for three years before he transferred to Oklahoma City as central region production manager in 1953.

HAROLD J. HEWETT, JR., has been appointed market analyst on sales and distribution for Transwestern Pipeline Co., with headquarters in Houston. He recently returned from Buenos Aires, Argentina, where he was involved in the construction of natural gas and products pipelines for the Argentine government. He has also been in the sales department of Tennessee Gas Transmission Co., where he assisted in the initial development of gas markets for Midwestern Gas Transmission Co., a Tennessee Gas affiliate.

PAUL L. KARTZKE will become executive vice-president of Shell Oil Co. of Canada, Ltd., Toronto, on Jan. 1. For the past nine years, he has been vice-president in charge of Shell's exploration and production activities in western and northern Canada.

P. L. Kartzke

C. W. Coffey

CLARENCE W. COFFEY has been elected vice-president, secretary, and treasurer of The California Co., with headquarters in New Orleans. Coffey, who joined the company in 1936, was most recently comptroller. In his new positions, he succeeds **Dee Davis**, who is transferring to Denver as vice-president, secretary, and treasurer of California Oil Co., Western Division, which is currently being formed. **Jack K. Ellison**, formerly assistant comptroller, succeeds Coffey as Calco's comptroller.

WILBERT B. DUBIN moves up to marketing manager for Tidewater Oil Co.'s western division, with offices in Los Angeles. He succeeds **Donald T. Whalen**, who recently became national marketing manager. Dubin, who has been with Tidewater since 1954, was most recently retail marketing manager for the Western division.

W. B. Dubin

E. L. Hemming

E. L. HEMMING has been transferred from Gulf Oil Corp. to Wilshire Oil Co. of California as vice-president of sales. Gulf acquired Wilshire earlier this year. Hemming, who has been with Gulf for the past 27 years, was most recently division general manager of Gulf's Philadelphia sales division, responsible for marketing of Gulf products in the Middle Atlantic states. Before that, he was located at Gulf headquarters in Pittsburgh as coordinator of retail and jobber sales.

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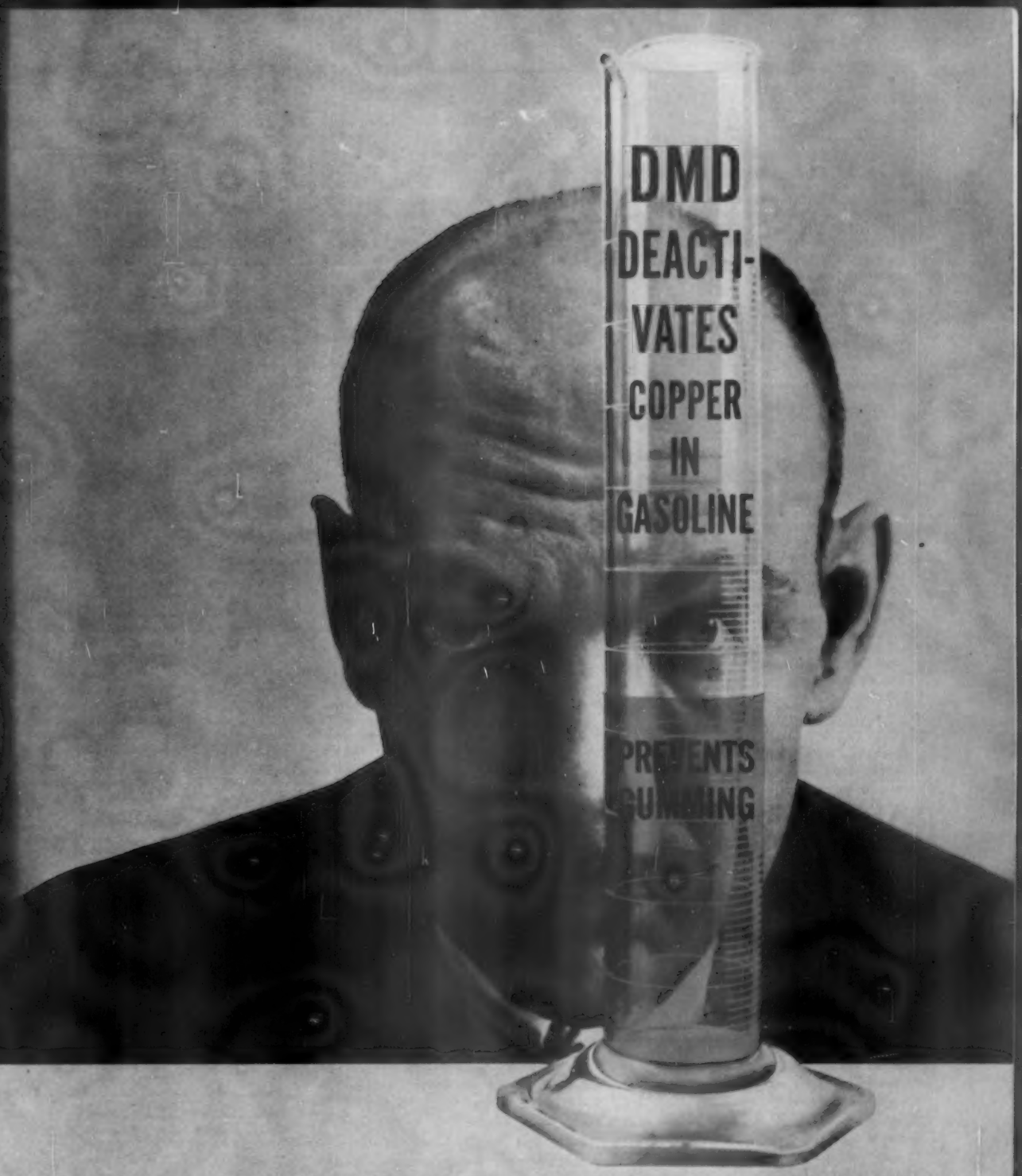

HERE IS ENOUGH (3 ounces) Du Pont Metal Deactivator to prevent copper-caused gumming in 8000 gallons of gasoline. ■ Somewhere, somehow, nearly every gallon of the gasoline, kerosine, jet or diesel fuel you produce will come in contact with at least a tiny bit of copper. Can't be helped. ■ By adding DMD to the fuel, you convert any dissolved copper into harmless chelate complexes. Result? No gum, no loss of product quality, no complaints. ■ This additive, which Du Pont pioneered 20 years ago, is still the best metal deactivator known to petroleum science. And as you can see, a little goes a long way. Figure the economics for yourself, or ask us to. ■ E. I. du Pont de Nemours & Co. (Inc.), Petroleum Chemicals Division, Wilmington 98, Delaware.

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CLARK P. LATTIN, JR., has been elected vice-president in charge of petroleum and petrochemical development for Chemical Construction Corp., New York. He was formerly vice-president, a director, and a member of the executive committee of Foster Wheeler Corp. Chemical Construction is a wholly owned chemical process engineering and construction subsidiary of Electric Bond & Share Co.

C. P. Lattin, Jr.

R. W. Johnson

ROBERT W. JOHNSON has joined Graver Tank & Mfg. Co., a division of Union Tank Car Co., as vice-president, marketing and sales, with headquarters in East Chicago, Ind. Johnson was most recently vice-president and general sales manager for Dunbar Kapple, Inc., Batavia, Ill. Before that, he was a marketing associate with Booz, Allen & Hamilton, a consulting firm. He has also held sales positions with Borg Warner Corp. and Weyerhaeuser Lumber Co. Graver Tank manufactures steel storage vessels and pressure vessels.

PAUL A. PITT has been elected vice-president, engineering, for Solar Aircraft Co., a subsidiary of International Harvester Co., in San Diego, Calif. Pitt will head Solar's engineering and research activities. At the same time, **Sumner Alpert** has been named manager of a new division which includes Solar's aerospace, ground support, and industrial products. He will be responsible for sales and project engineering in these areas. Pitt, who joined the company in 1942, headed the development of Solar's gas turbines, controls, and turbomachinery. He has been Solar's chief engineer since 1955. Alpert, who has been with the company since 1951, was most recently chief technical engineer.

R. A. BAKER, manager of the machinery division of Cabot Corp., Boston, has been elected vice-president. He was vice-president and manager of Cabot Shops, Inc., when it became a Cabot Corp. a short time ago. Baker, who has been with the Cabot organization since 1935, became general manager of Cabot Shops in 1941, and vice-president in 1951.

JAMES A. BAILEY has been appointed regional salesman, production equipment, at Midland, Tex., for Jones & Laughlin Supply Division. He will primarily be responsible for the promotion of J&L's lease automatic custody transfer, lease processing, and waterflood equipment in the West Texas area. Bailey joined J&L as a senior clerk in the general product sales department at the Tulsa office in 1959.

J. D. McNEILL is Grove Valve & Regulator Co.'s new sales engineer in Canada for pipeline and production valves and pressure regulators. He will be located in Calgary, where he will assist **Morley Davies**, who directs Grove's Canadian sales activities. McNeill has been associated with National Supply Co., Ltd., and with Amerada Petroleum Corp.

J. D. McNeill

C. L. Hastings

C. L. HASTINGS, president of Rochester Mfg. Co., Rochester, N.Y., which has been acquired by American Radiator & Standard Sanitary Corp., will become vice-president of American-Standard's Detroit Controls division. He will be responsible for the full line of the division, which will include Rochester Mfg.'s product line. Rochester produces liquid level, pressure, and temperature indication gauges and instruments used in chemical, petroleum, food processing, and marine tools industries.

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F. J. Eberle, Business Mgr.

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1375 Peachtree St., N.E.
Trinity 5-0523

Boston 16 — David G. Sawyer
350 Park Square Bldg.
Hubbard 7-7160

Chicago 11 — Edward A. Callahan Jr.
520 N. Michigan Avenue
Mohawk 4-5800

Cleveland 15 — Marcus A. Loy, Jr.
1164 Illuminating Bldg.
55 Public Square
Superior 1-7000

Dallas 1 — James R. Pierce
901 Vaughan Bldg.
2100 Commerce Street
Riverside 7-9721

Denver 2 — J. W. Patten
Tower Bldg., 1700 Broadway
Alpine 5-2981

Houston 25 — D. O. Hanson
724 Prudential Bldg.
Jackson 6-1281

Los Angeles 17 — Peter S. Carberry
1125 W. Sixth St.
Huntley 2-5450

New York 36 — David G. Sawyer
500 Fifth Ave.
Oxford 5-5959

Philadelphia 6 — H. Sherman Davis
6 Penn Center Plaza
Locust 8-4330

Pittsburgh 22 — Marcus A. Loy, Jr.
4 Gateway Center
Express 1-1314

Portland 4 — Scott Hubbard
Pacific Bldg.
Yamhill Street
Capital 3-5118

San Francisco 4 — William C. Woolston
68 Post Street
Douglas 2-4600

Tulsa 3 — J. A. Hartley
909 Enterprise Bldg.
522 South Boston
Luther 7-5594

England, London E. C. 4 — E. E. Schirmer
McGraw-Hill Co., Ltd.
95 Farringdon St.

Germany, Frankfurt/Main — S. Kimes
85 Westendstrasse

Switzerland, Geneva — M. R. Zeynel
2 Place du Port

Warren W. Hastings, vice-president of manufacturing and engineering for Rochester since 1948, will continue to manage production operations at Rochester.

A. G. G. De CHASTELAIN is the new vice-president in Calgary for Airdrill International, Inc., Denver, air and gas drilling consultants. He was formerly vice-president and general manager of Wellsite Air Services, Ltd., Calgary. At the same time, **Fred J. Jobst**, vice-president of Val R. Wittich, Inc., New York, becomes New York representative for Airdrill. Jobst will process inquiries and initiate consultation services with New York area oil companies.

A. G. De Chastelain C. F. Robinson

DR. CHARLES F. ROBINSON, director of the Bell & Howell Research Center, has been elected a vice-president of Consolidated Electrodynamics Corp., which became a subsidiary of Bell & Howell Corp. earlier this year. The research center, located in Pasadena, Calif., combines research activities of Bell & Howell and CEC. Robinson is the first director of the center, which was established when the two companies merged. Robinson joined CEC as a staff physicist in 1947, was senior physicist in 1958, and associate director of research in 1959.

CROSBY M. KELLY and **WILLIAM E. McKENNA** are new vice-presidents of Litton Industries, Inc., Beverly Hills, Calif. Kelly is in charge of Litton's advertising, public relations, and employee communications, and McKenna is treasurer and controller of the company. Kelly, who joined Litton in 1955, has served as assistant to the president before assuming his present position. McKenna was named treasurer and controller of Litton in 1960 after serving as vice-president and controller of Monroe Calculation Machine Co.

DR. IRWIN M. STELZER has been named senior vice-president of Boni, Watkins, Jason & Co., economic and management consultants in New York. Stelzer, with the company since 1956, has served as a consultant to the transportation section of the natural gas industry, and to manufacturing companies and investment houses, on subjects including rates, mergers, antitrust litigation, industry studies, and other problems.

WILLIAM E. LENNARD is the new city representative of United States Steel Corp.'s Oil Well Supply Division in Los Angeles. He has been manager of drilling equipment sales in Los Angeles since 1959. Lennard, who joined Oilwell in 1948 as assistant district engineer at Los Angeles, served as district engineer there before moving to Long Beach in 1950. He returned to Los Angeles in 1953 as assistant to the area engineer, and after that was named head of drilling equipment sales.

BANNOCK STEEL CO., Pocatello, Idaho, and Gate City Steel, Inc., Boise, Idaho, have entered into a preliminary merger agreement. **S. L. Cate, Jr.**, president of Bannock Steel Co., will be general manager of the new operation, which will be directed by Bannock Steel management, under the name Bannock Steel Corp. Gate City Steel, Inc., Omaha, Neb., subsidiary of Husky Oil Co., Cody, Wyo., which owns all the stock of the Boise company, is not included in the merger. It will continue to operate independently, from its Omaha headquarters.

C. L. HEISE has been appointed contract district engineer for Hamilton Mfg. Co. in Southern California, with offices in Los Angeles. Heise, who has been with Hamilton for the past ten years, was most recently director of proposals and contracts. He also served as chief of sales engineer, and chief estimator. In his new position, Heise will direct all field sales operations of the contract department in Southern California including sales activities of Brookman Co. of Southern California, and C. S. Goodale Co., San Diego.

WILLIAM E. FICKERT is in charge of the newly established Midland (Tex.) office of Ryder Scott Co., Petroleum Engineers, and Ryder Scott Management Co. Before joining Ryder Scott, he was manager of the core analysis and flood pot laboratories of Orchem Corp. He has also been laboratory services supervisor for the petroleum engineering department at the University of Texas. The Ryder Scott companies specialize in the engineering of primary and secondary recovery projects, oil and gas reserve evaluations, and professional oil and gas property management operation.

ROBERT ALLYN, formerly distributor sales manager for Owatonna Tool Co., Owatonna, Minn., has been promoted to assistant to the company's vice-president and director of sales, **J. A. Mullenmaster**. At the same time, OTC's sales department was divided into three divisions: precision hydraulics, tools and equipment, and export. **J. E. Braas**, formerly OTC industrial sales manager, is head of the precision hydraulics division. **Carlos V. del Mercado**, who has been manager of the company's export business for the past five years, is manager of the export division. A sales manager has not yet been named for the tools and equipment division.

DAVID R. CUMMING, export area manager of United States Steel Corp.'s Oil Well Supply Division, will continue to direct export activities from new export area headquarters in Dallas. Headquarters were formerly in New York.

SEARCHLIGHT SECTION

(Classified Advertising)

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This is an excellent opportunity for rewarding work and personal development. Stock purchase, pension and other employee benefit plans are excellent. Age limit 45. Send your complete, detailed resume, including salary requirements.

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Wish to contact major oil company in need of experienced auditor to audit overseas operations, supervise audit functions, or act as trouble shooter for special assignments. Presently employed and familiar with all phases of oil and gas business. Mature, efficient, diplomatic. Resume on request. PW-5719, Petroleum Week.

BUSINESS OPPORTUNITIES

Use this Classified Advertising Section for bringing business needs or opportunities to the attention of men associated in administrative, executive, management, sales and responsible technical engineering and operating capacities within the oil industry.

PETROLEUM WEEK

1961 Offers a Modest Rate of Growth

THE MOST SIGNIFICANT take-home information from the recent American Petroleum Institute annual meeting was the confidence of many oil men and equipment suppliers over the business prospects for next year.

Comments within the petroleum industry have been overly pessimistic for far too long. The industry has had its problems, particularly those resulting from too much capacity, and will undoubtedly have tough problems to solve in the future.

NO ONE EXPECTS 1961 to be a boom year. Industry officials are resigned to the fact that the economy generally, and oil in particular, will show only modest growth. Total demand for petroleum is expected to rise between 2% and 2.5%, and the demand for domestic crude may be up close to 3%. The volumetric increase in demand should average around 250,000 b/d above 1960—a year that has been a fairly good one for the industry profitwise.

The confidence in the outlook for the immediate future stems from three basic factors:

- Individual companies within the industry are in a much stronger position now as a result of streamlining of operations—or weeding out the fat, if you prefer—that was necessitated during the recent lean years of battling with the surplus problem.
- Regardless of the surplus productive capacity now available, the long-term requirements for petroleum energy dictate a continued search for new sources of petroleum.
- Petroleum companies have shown the ability to develop new markets for products derived from liquid and gaseous hydrocarbons.

TRANSLATING THIS OPTIMISM into dollars and cents, the industry has indicated it is willing to bet a record of $6.7-billion in capital outlays that the immediate future will offer increased business opportunities. Expenditures for drilling and production will be up 3% next year, to $4,122,000,000. It is particularly worth noting that the largest increase in capital spending planned for 1961 will be in new processing facilities. The planned spending of $803-million, a 12.9% rise over 1960, will go largely into petrochemical plants, which will provide outlets for additional crude and natural gas.

One word of caution: Demand for the raw-material hydrocarbons will grow, but the markets will only absorb what consumers can use. Periods of modest growth require that production of the raw materials move ahead at similar pace—a modest rate. And a modest rate of growth is no signal for producers or refiners to open the valves all the way.

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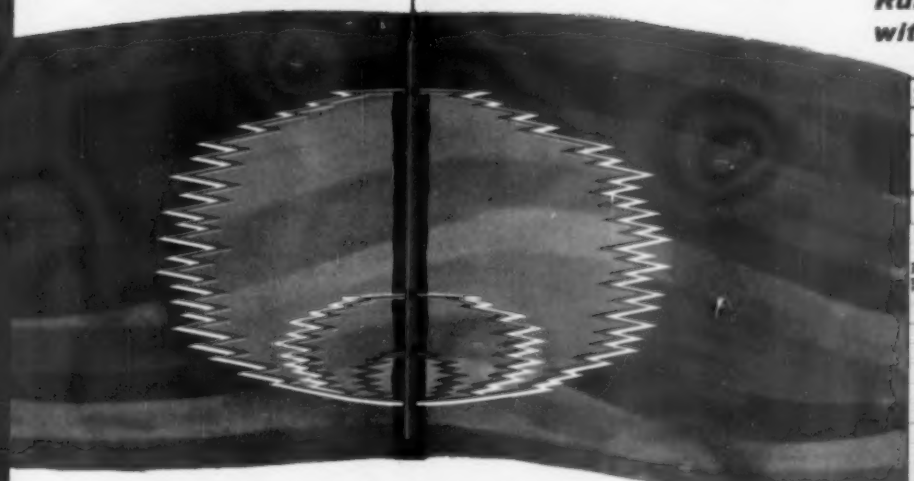

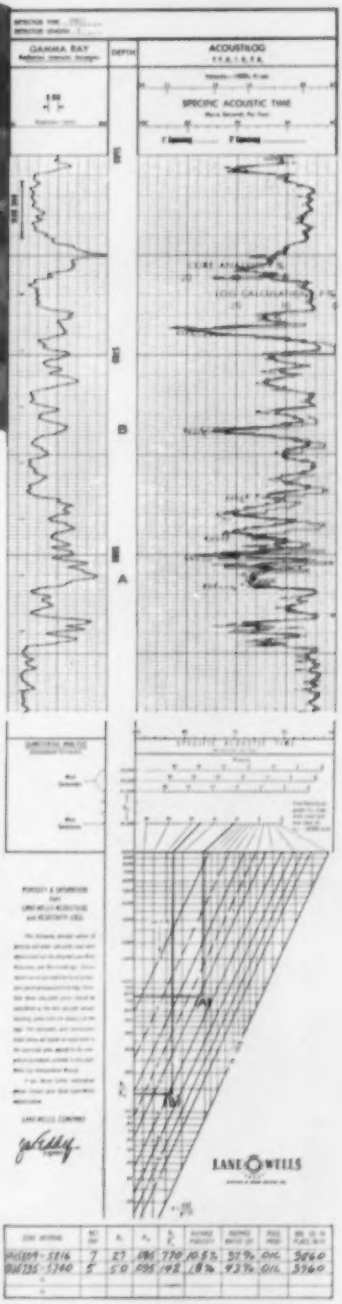

Lane-Wells Dual Spaced Acoustilog is the most accurate, most meaningful, most informative, quickest run log of this type available anywhere. All new instruments, offered exclusively by Lane-Wells, make it possible to run both 1′ and 3′ spacing curves plus either a self potential or a gamma ray curve all on one trip into the well.

Provides Most Meaningful, Most Accurate FORMATION EVALUATION

MOST MEANINGFUL!—Because both the 1′ and 3′ curves are recorded while the instrument is in the same position in the borehole, the differences in readings are significant and reliable. Porosities may be read accurately directly from the log. **MOST ACCURATE!** — Exclusive design and circuitry features of Lane-Wells Dual Spaced Acoustilog enable it to measure sound velocities within ±2% of known formation velocities.

PLUS–CEMENT LOCATION

Dual Spaced ACOUSTILOGS have proved remarkably valuable in locating cement and channeling behind casing. Even in areas where other cement locating equipment fails, Acoustilog gets the information.

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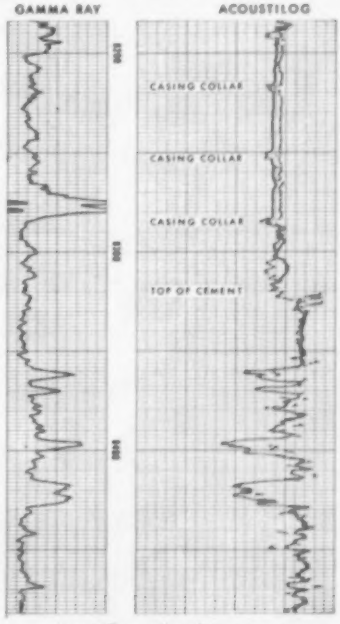

Acoustilog used to locate cement.

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How steel tubing saves weight in helicopter...in budget, too

Shown below is the main rotor shaft of a new model helicopter. Because it was hollowed out of solid steel bars to save weight, it was costly to make. After machining to thousandths of an inch accuracy, previously undetected steel flaws showed up. One out of every five parts had to be rejected.

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Let us help you cut your costs, get better quality finished products.

Our engineers will recommend the most economical tube size for your hollow parts jobs, one guaranteed to clean up to your finish dimensions. ***When you buy Timken Steel you get:*** *1) Quality that's uniform from heat to heat, bar to bar, order to order. 2) Personal attention from the experts in specialty steels. 3) Over 40 years experience in solving tough steel problems.* The Timken Roller Bearing Company, Steel and Tube Division, Canton 6, Ohio. Cable: "TIMROSCO". *Makers of Tapered Roller Bearings, Fine Alloy Steel and Removable Rock Bits.*

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